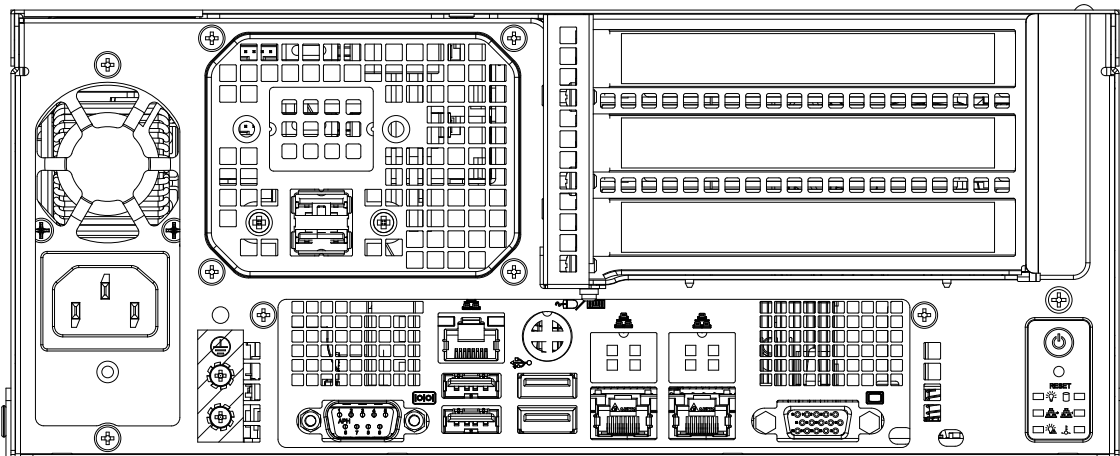




# SUPERSERVER<sup>®</sup> E403-9P-FN2T



## USER'S MANUAL

Revision 1.0a

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Manual Revision 1.0a

Release Date: January 24, 2022

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# Preface

## About this Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the server. Installation and maintenance should be performed by experienced technicians only.

Please refer to the E403-9P-FN2T server specifications page on our website for updates on supported memory, processors and operating systems (<http://www.supermicro.com>).

## Notes

For your system to work properly, please follow the links below to download all necessary drivers/utilities and the user's manual for your server.

- Supermicro product manuals: <https://www.supermicro.com/support/manuals/>
- Product drivers and utilities: <https://www.supermicro.com/wdl>
- Product safety info: [https://www.supermicro.com/about/policies/safety\\_information.cfm](https://www.supermicro.com/about/policies/safety_information.cfm)

If you have any questions, please contact our support team at:  
[support@supermicro.com](mailto:support@supermicro.com)

This manual may be periodically updated without notice. Please check the Supermicro website for possible updates to the manual revision level.

## Secure Data Deletion

A secure data deletion tool designed to fully erase all data from storage devices can be found on our website: [https://www.supermicro.com/about/policies/disclaimer.cfm?url=/wdl/utility/Lot9\\_Secure\\_Data\\_Deletion\\_Utility/](https://www.supermicro.com/about/policies/disclaimer.cfm?url=/wdl/utility/Lot9_Secure_Data_Deletion_Utility/)

## Warnings

Special attention should be given to the following symbols used in this manual.



**Warning!** Indicates important information given to prevent equipment/property damage or personal injury.



**Warning!** Indicates high voltage may be encountered when performing a procedure.

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***Appendix C System Specifications***

BSMI Chinese Safety Warnings

***Appendix D UEFI BIOS Recovery***

***Appendix E IPMI Crash Dump***

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Website: [www.supermicro.com.tw](http://www.supermicro.com.tw)

# Chapter 1

## Introduction

### 1.1 Overview

This chapter provides a brief outline of the functions and features of the E403-9P-FN2T server. It is based on the X11SPW-TF motherboard and the E403iF chassis.

In addition to the motherboard and chassis, several important parts that are included with the system are listed below.

Main Parts List		
Description	Part Number	Quantity
Power supply module	PWS-601-1H	1
Add-on module for PCIe	AOM-SDW-B16X2	1
Fans	FAN-0200L4	3
Air Shroud	MCP-310-40301-0B	1
Heatsink	SNK-P0071VS	1

### 1.2 Unpacking the System

Inspect the box the system was shipped in and note if it was damaged in any way. If any equipment appears damaged, please file a damage claim with the carrier who delivered it.

Decide on a suitable location for the server. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. It will also require a grounded AC power outlet nearby. Be sure to read the precautions and considerations noted in Appendix B.

## 1.3 System Features

The following table is an overview of the main features of the E403-9P-FN2T server.

System Features
<b>Motherboard</b>
X11SPW-TF
<b>Chassis</b>
E403iF
<b>CPU</b>
Single Intel Xeon 81xx/61xx/51xx/41xx/31xx or Xeon 82xx/62xx/52xx/42xx/32xx processors (Intel Scalable Processors) in Socket P0 (LGA3647) For the latest CPU/memory updates, refer to our website at <a href="http://www.supernmicro.com/products/motherboard/Xeon/C620/X11SPW-TF.cfm">http://www.supernmicro.com/products/motherboard/Xeon/C620/X11SPW-TF.cfm</a> .
<b>Memory</b>
Six slots for up to 1.5TB DDR4 3DS ECC RDIMM or LRDIMM memory with speeds of up to 2933MHz
<b>Chipset</b>
Intel C622
<b>Expansion Slots</b>
One PCIe 3.0 x16 slot and two PCIe 3.0 x8 slots, OR two PCIe 3.0 x16 slots One M.2 M-Key 2280/22110 (PCIe 3.0 x4 / SATA3)
<b>Storage Drives</b>
Four fixed internal 2.5" SATA bays (Optional) M.2: One PCIe M.2 M-Key
<b>Power</b>
600 W 80Plus Gold level module
<b>Cooling</b>
Three 8.0 X 3.8-cm heavy duty fans, a CPU heatsink, an air shroud to direct flow
<b>Input/Output</b>
USB: four 3.0 ports; two USB 2.0 ports One serial port; one VGA port
<b>LAN ports</b>
Two 10 GbE ports One dedicated BMC port
<b>Form Factor</b>
Box; (WxHxD) 10.5 x 4.3 x 16 in. (267 x 109 x 406 mm)

## 1.4 Chassis Features

### Control Panel

Power switches and status LEDs are located on the control panel on the front of the chassis.

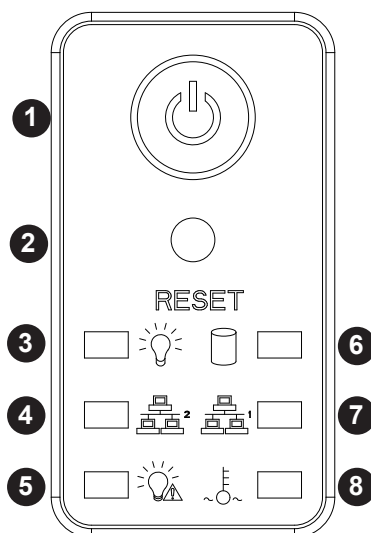


Figure 1-1. Control Panel

Control Panel Features		
Item	Features	Description
1	Power button	The main power switch applies or removes primary power from the power supply to the server but maintains standby power.
2	Reset button	Reboots the system.
3	Power LED	Indicates power is being supplied to the system power supply units. This LED is illuminated when the system is operating normally.
4	NIC LED	Indicates network activity on LAN2 when flashing.
5	Power Fail LED	Indicates a power supply module has failed.
6	HDD LED	Indicates activity on the hard drive when flashing.
7	NIC LED	Indicates network activity on LAN1 when flashing.
8	Overheat LED	Indicates an overheat condition

**Caution:** Since the system continues to draw a small amount of power in standby mode (and fans are off), there is a potential for overheating if the system is idle for a long time. In this situation, there is no warning from the overheat/fan fail LED.

## Chassis Front

The illustration below shows the features on the front of the chassis.

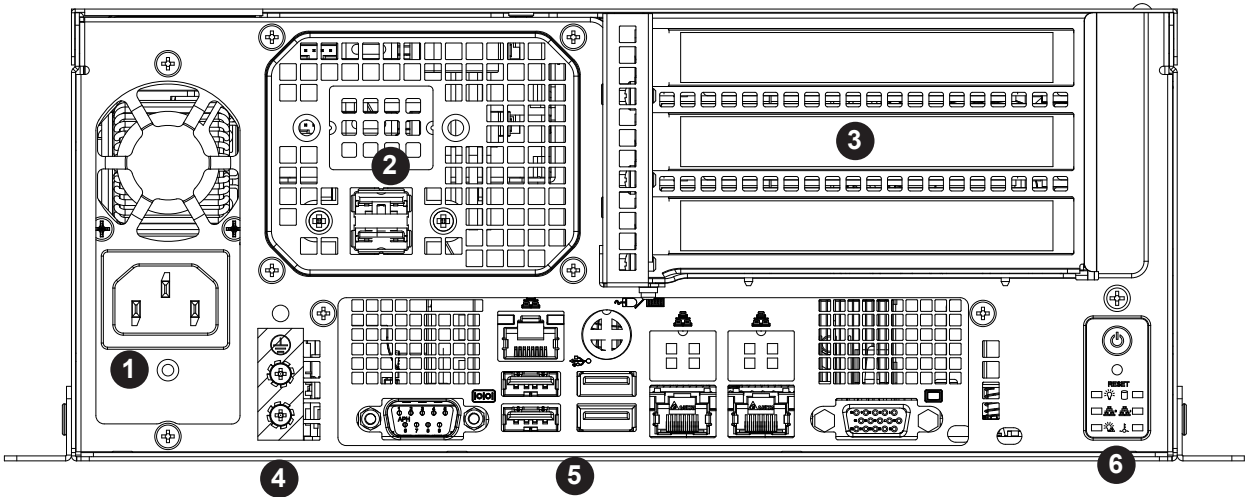
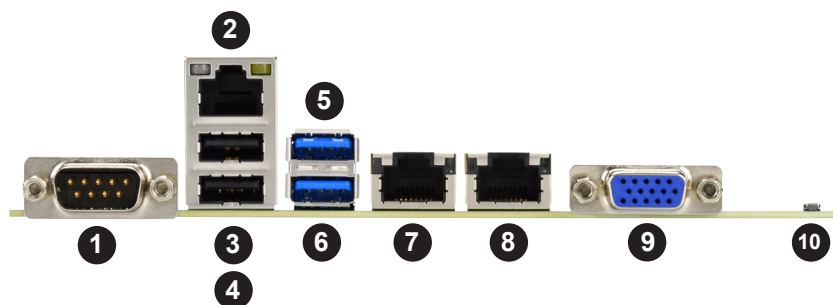


Figure 1-2. Front View

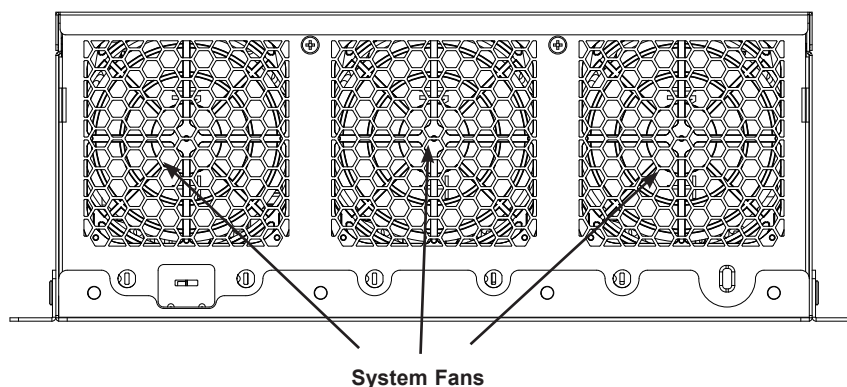
Front Chassis Features		
Item	Features	Description
1	Power Input	Main power input
2	USB ports	External USB 3.0, Type A ports
3	PCI Slots	Three PCIe expansion slots
4	Ground	Two ground screws provided to attach the chassis to an electrical ground
5	I/O Back Panel	Input/output ports, described on the next page
6	Control Panel	System control panel, described on the previous page

**Figure 1-3. Rear I/O Ports**

#	Description	#	Description
1	COM Port 1	6	USB7 (3.0)
2	Dedicated BMC LAN	7	LAN1
3	USB1 (2.0)	8	LAN2
4	USB0 (2.0)	9	VGA Port
5	USB8 (3.0)	10	UID Switch

## Chassis Rear

The illustration below shows three system fans included on the rear of the chassis.

**Figure 1-3. Rear View**



## 1.5 Motherboard Layout

Below is a layout of the X11SPW-TF with jumper, connector and LED locations shown. See the table on the following page for descriptions. For detailed descriptions, pinout information and jumper settings, refer to Chapter 4.

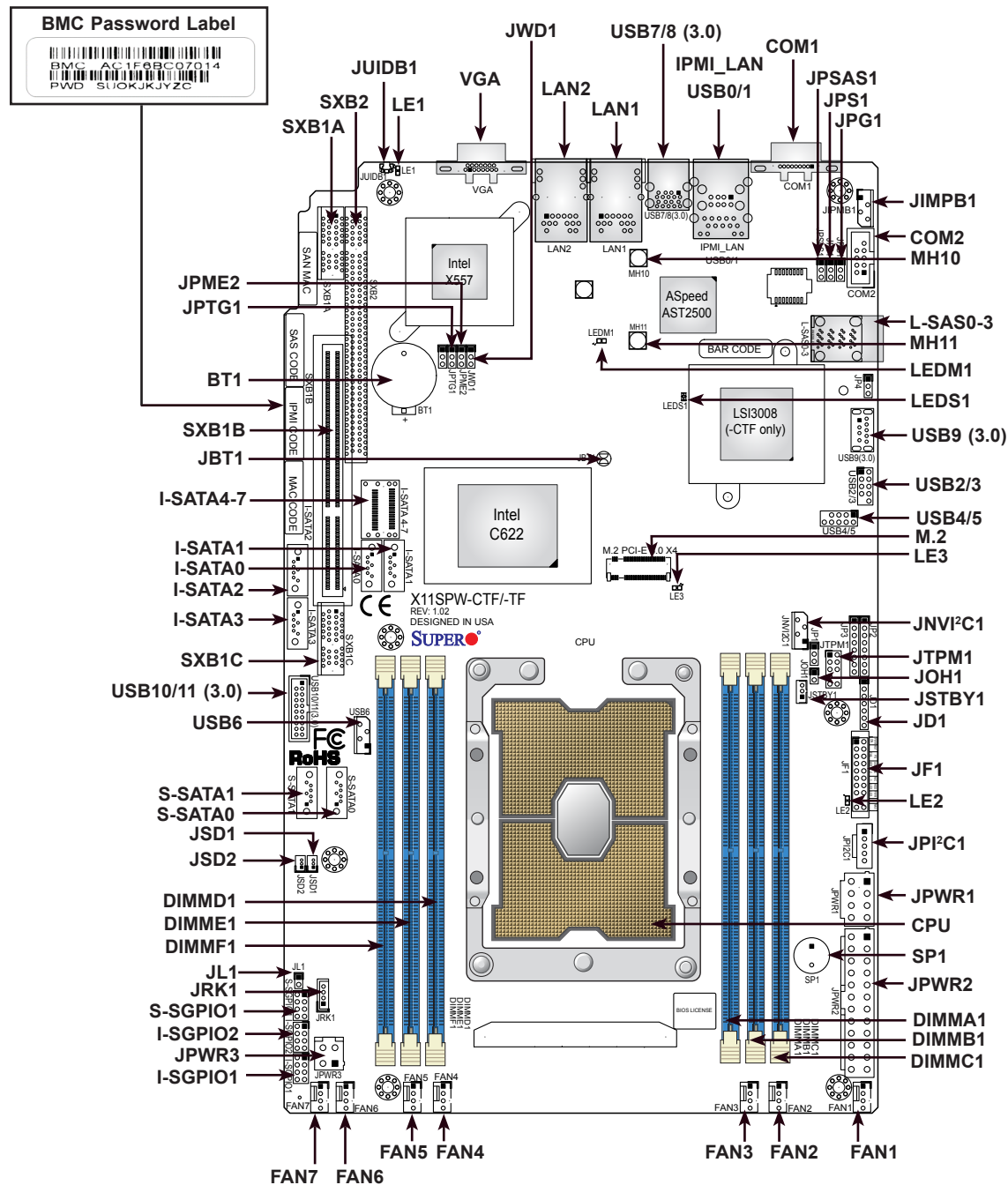


Figure 1-4. Motherboard Layout

## Quick Reference

Jumper	Description	Default Setting
JBT1	CMOS Clear	Open (Normal)
JPG1	VGA Enable/Disable	Pins 1-2 (Enabled)
JPME2	ME Manufacturing Mode	Pins 1-2 (Normal)
JPS1	SAS 3.0 Enable/Disable	Pins 1-2 (Enabled)
JPSAS1	SAS HDD Enable/Disable	Pins 1-2 (Enabled)
JPTG1	LAN Enable/Disable	Pins 1-2 (Enabled)
JWD1	Watchdog Timer	Pins 1-2 (Reset)

Connector	Description
BT1	Onboard Battery
COM1, COM2	COM Port, COM Header
FAN1 – FAN7	System Fan Headers
IPMI_LAN	Dedicated BMC LAN Port
I-SATA0~7	Intel PCH SATA 3.0 Ports (with RAID 0, 1, 5, 10)
I-SGPIO1, I-SGPIO2, S-SGPIO1	Serial Link General Purpose I/O Headers
JD1	Speaker/Power LED Indicator (Pins 1-3: Power LED, Pins 4-7: Speaker)
JF1	Front Control Panel Header
JIPMB1	4-pin BMC External I <sup>2</sup> C Header (for an IPMI card)
JL1	Chassis Intrusion Header
JNV <sup>2</sup> C1	NVMe I <sup>2</sup> C Header
JOH1	Overheat LED Header
JPI <sup>2</sup> C1	Power System Management Bus (SMB) I <sup>2</sup> C Header
JPWR1	8-pin 12V DC Power Connector for CPU (Required)
JPWR2	24-pin ATX Power Connector
JPWR3	4-pin 12V Power Connector for GPU Card (Requires an extra 12V power at up to 75W)
JRK1	Intel RAID Key Header
JSD1, JSD2	SATA DOM Power Connectors
JSTBY1	Standby Power Header
JTPM1	Trusted Platform Module (TPM)/Port 80 Connector
JUIDB1	Unit Identifier (UID) Switch
LAN1, LAN2	10GbE LAN Ports
L-SAS0~3	Four SAS 3.0 Ports (with RAID 0, 1, 10) (X11SPW-CTF only)
M.2	M.2 PCIe 3.0 x4 or SATA 3.0 Slot
MH10, MH11	M.2 Mounting Holes
SP1	Internal Speaker/Buzzer
S-SATA0~1	SATA 3.0 Ports with SATA DOM Power
SXB1A, SXB1B, SXB1C	Supermicro Proprietary WIO Left Add-on Card Slots
SXB2	Supermicro Proprietary WIO Right Add-on Card Slot

Connector	Description
USB0/1	Back Panel Universal Serial Bus (USB) 2.0 Ports
USB2/3, USB4/5	Front Accessible USB 2.0 Headers
USB6	USB 2.0 Header (Not customized for the front panel)
USB7/8	Back Panel USB 3.0 Ports
USB9	USB 3.0 Type-A Header
USB10/11	Front Accessible USB 3.0 Header
VGA	VGA Port

LED	Description	State: Status
LE1	Unit Identifier (UID) LED	Solid Blue: Unit Identified
LE2	Onboard Power LED	Solid Green: Power On
LE3	M.2 LED	Blinking Green: Device Working
LEDM1	BMC Heartbeat LED	Blinking Green: BMC Normal
LEDS1	SAS Activity LED	Blinking Green: SAS Active Solid Red: SAS Error

## System Block Diagram

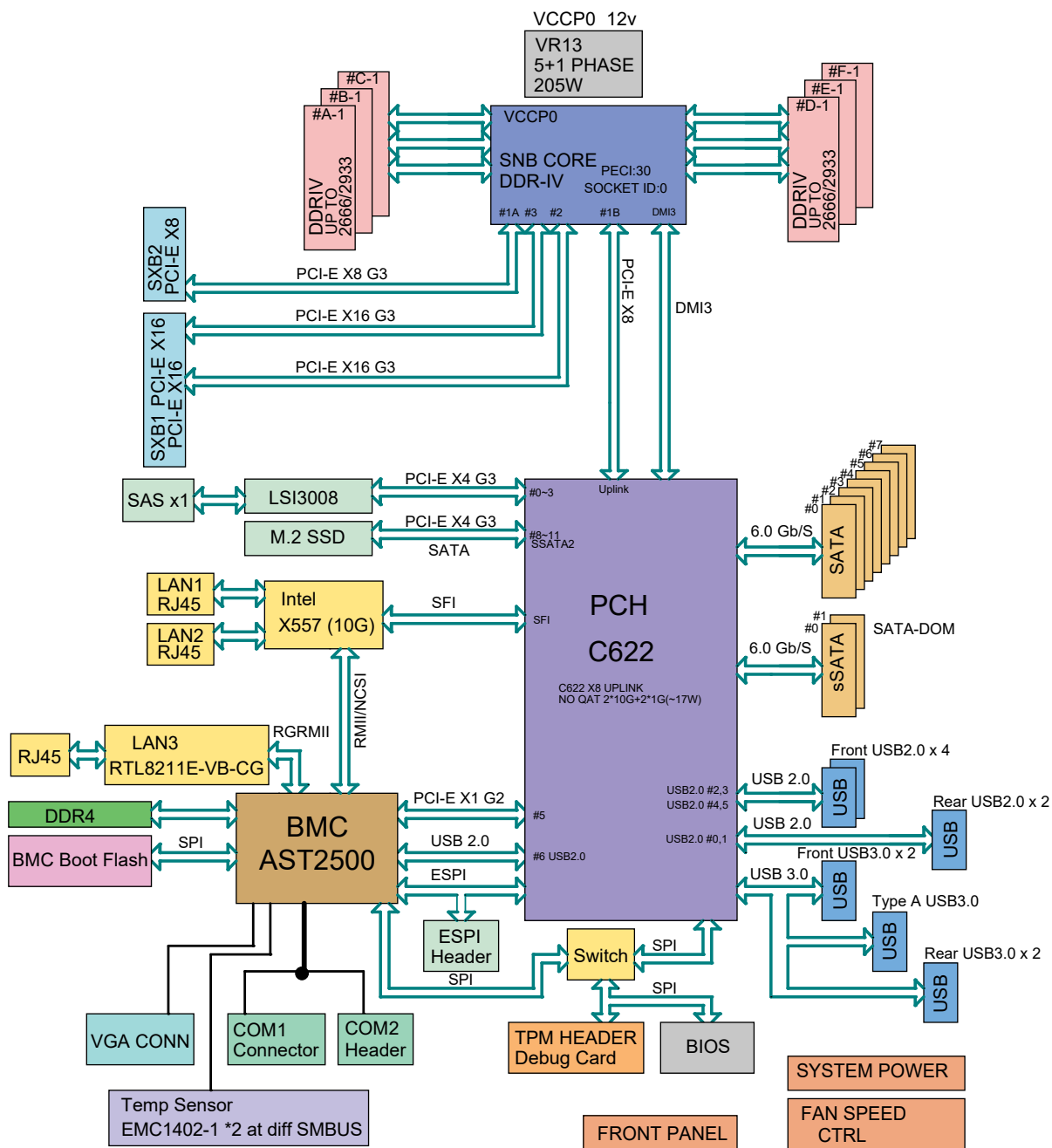


Figure 1-5. Chipset Block Diagram

## 1.6 Server Installation and Setup

The server is shipped with the motherboard installed in the chassis. Several steps are necessary to begin using your server. You must add memory, mount the hard disk drive, and mount the system in place.

### Unpacking the System

Inspect the box in which the system was shipped and note if it was damaged. If the server itself shows damage, file a damage claim with the carrier.

### Warnings and Precautions

- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges, voltage spikes and to keep your system operating in case of a power failure.
- Review the electrical and general safety precautions in Appendix B.

### Adding Components to your System

- **Memory:** If your system is not already fully integrated with system memory, refer to Chapter 2 for details on compatible types of memory and the installation procedure.
- **Drives and Storage:** To add storage capabilities to your server, see Chapter 2.
- **Input/Output:** See Chapter 3 for I/O ports and connect them as needed.
- **Software:** See Chapter 4 for description and procedures for installing software, including drivers and monitoring programs.

## 1.7 Where to Get Replacement Components

If you need replacement parts for your system, to ensure the highest level of professional service and technical support, purchase exclusively from our Supermicro Authorized Distributors/System Integrators/Resellers. A list can be found at: <http://www.supermicro.com>. Click the "Where to Buy" link.

## 1.8 Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

For faster service, RMA authorizations may be requested online (<http://www.supermicro.com/support/rma/>).

Whenever possible, repack the chassis in the original Supermicro carton, using the original packaging material. If these are no longer available, be sure to pack the chassis securely, using packaging material to surround the chassis so that it does not shift within the carton and become damaged during shipping.

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alteration, misuse, abuse or improper maintenance of products.

During the warranty period, contact your distributor first for any product problems.

## Chapter 2

### Maintenance and Component Installation

This chapter provides instructions on installing and replacing main system components. To prevent compatibility issues, only use components that match the specifications and/or part numbers given.

Installation or replacement of most components require that power first be removed from the system. Please follow the procedures given in each section.

#### 2.1 Removing Power

Use the following procedure to ensure that power has been removed from the system. This step is necessary when removing or installing non hot-swap components or when replacing a non-redundant power supply.

1. Use the operating system to power down the system.
2. After the system has completely shut-down, disconnect the AC power cord from the power strip or outlet.
3. Disconnect the power cord from the chassis.

## 2.2 Accessing the System

The E403 chassis has a removable top cover to access internal components.

### Removing the Top Cover

1. Remove the three screws and rotate the rear portion of the cover up.

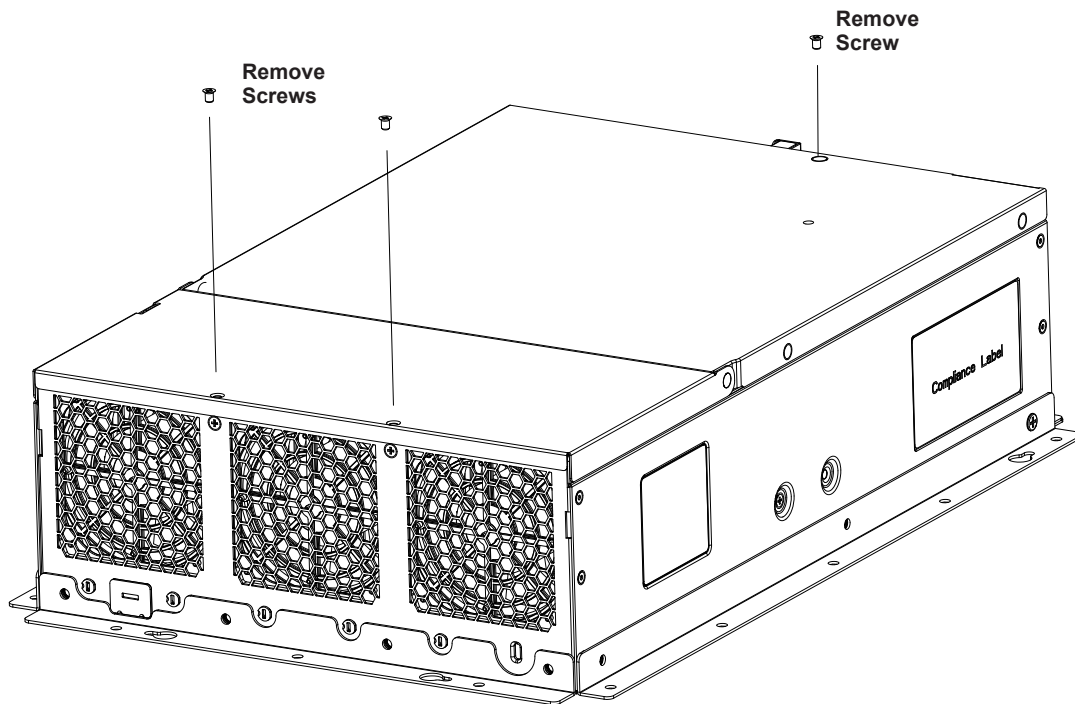
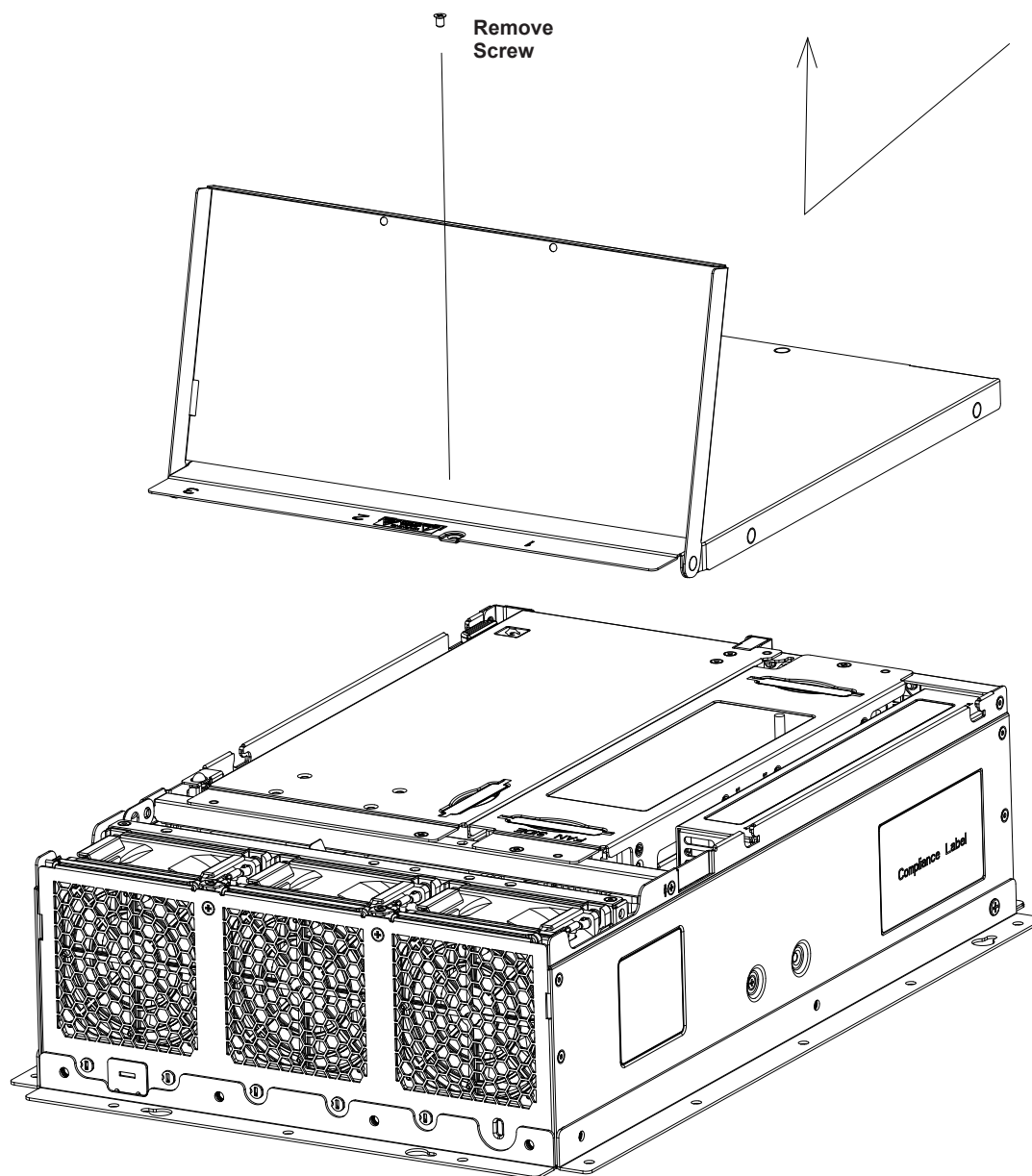


Figure 2-1. Removing the Chassis Cover



2. Remove the final screw, then slide the cover toward the rear and lift.



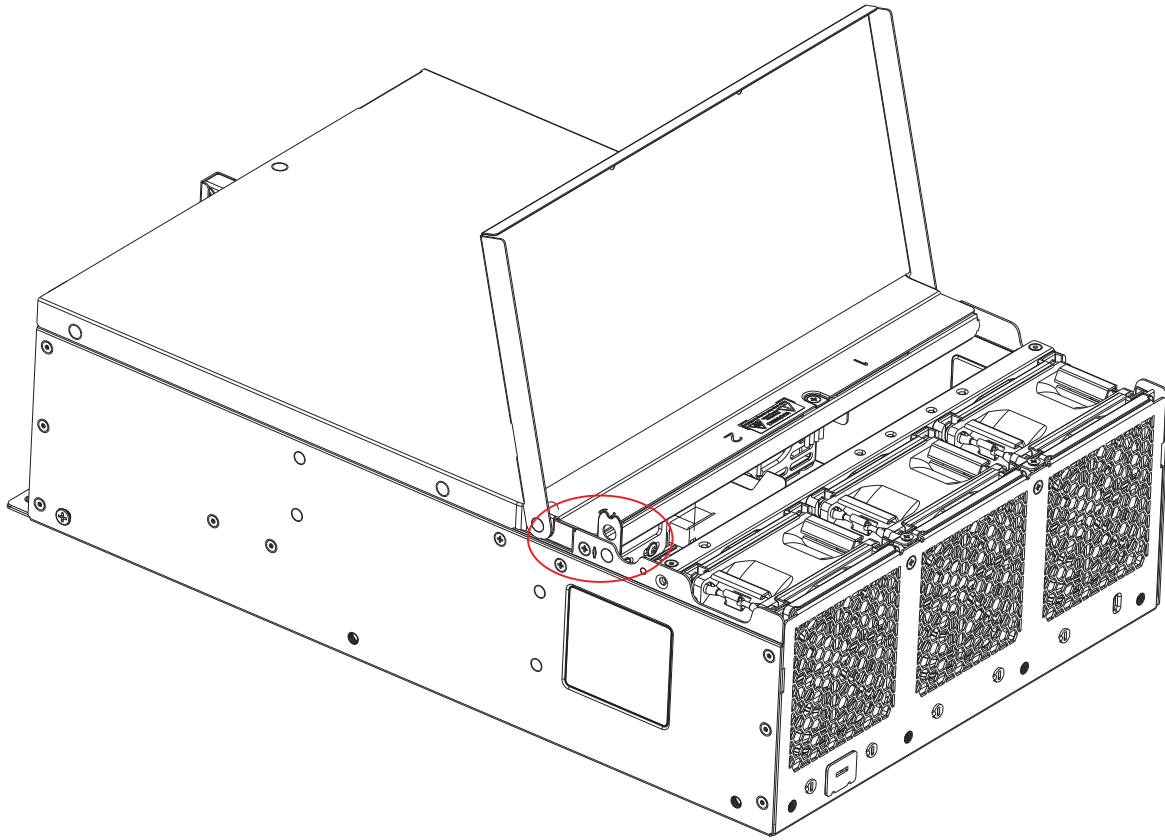
**Figure 2-2. Removing the Chassis Cover**

**Caution:** Except for short periods of time, do not operate the server without the cover in place. The chassis cover must be in place to allow for proper airflow and to prevent overheating.

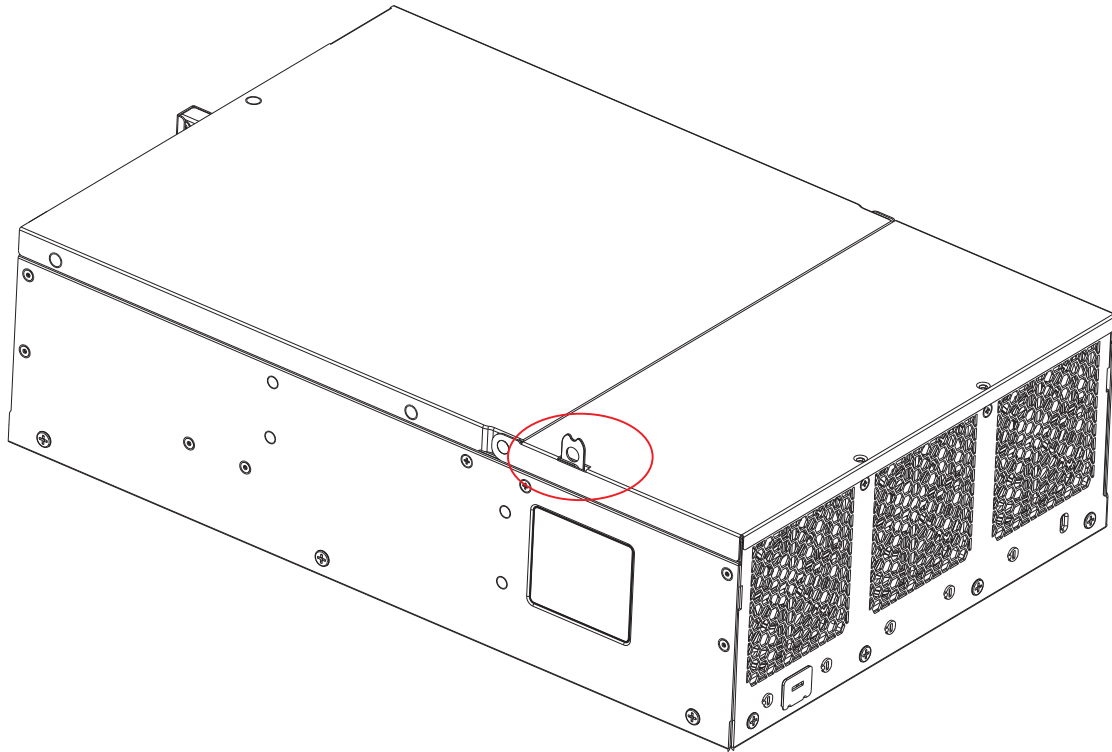
## Enabling the Top Cover Lock Function

The chassis includes a lock plate that allows the top cover to be locked.

1. Pull the lock plate into a vertical position.
2. Close the fan cover. Make sure the lock plate fits through the slot on the cover.
3. Install two screws on the fan cover.
4. Install a lock on the lock plate.



**Figure 2-3. Pull the Lock Plate Up**



**Figure 2-4. Top Cover Lock Tab**

## 2.3 Motherboard Components

### Processor and Heatsink Installation

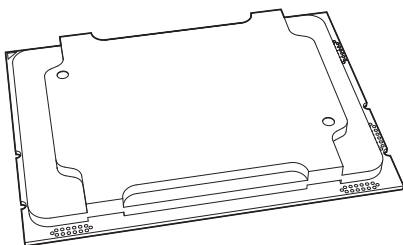
The processor (CPU) and processor carrier should be assembled together first to form the processor carrier assembly. This will be attached to the heatsink to form the processor heatsink module (PHM) before being installed onto the CPU socket.

#### Notes:

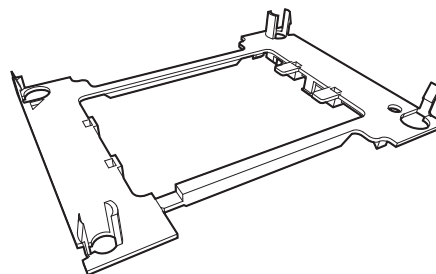
- Use ESD protection.
- Unplug the AC power cord from all power supplies after shutting down the system.
- Check that the plastic protective cover is on the CPU socket and none of the socket pins are bent. If they are, contact your retailer.
- When handling the processor, avoid touching or placing direct pressure on the LGA lands (gold contacts). Improper installation or socket misalignment can cause serious damage to the processor or CPU socket, which may require manufacturer repairs.
- Thermal grease is pre-applied on a new heatsink. No additional thermal grease is needed.
- Refer to the Supermicro website for updates on processor support.
- All graphics in this manual are for illustration only. Your components may look different.

### *The Processor Carrier Assembly*

The processor carrier assembly is the processor and a plastic carrier.



Processor

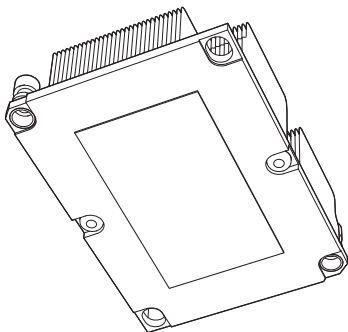


Processor Carrier

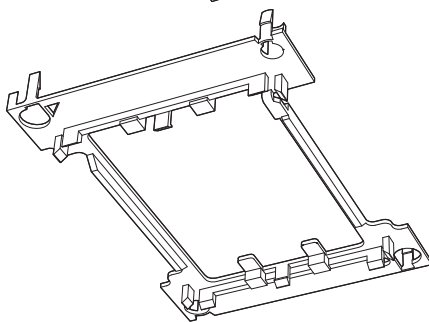
### ***Overview of the Processor Heatsink Module***

The Processor Heatsink Module (PHM) contains a heatsink, a processor carrier, and the processor.

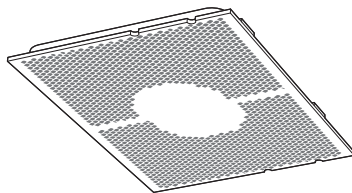
**Heatsink with Thermal Grease**



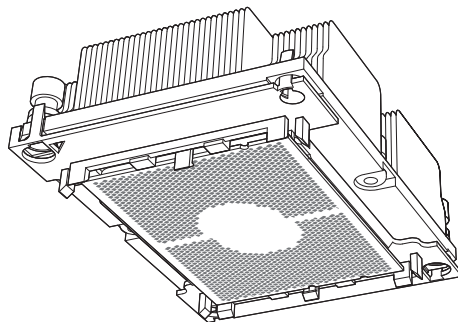
**Processor Carrier**



**Processor**



**Processor Heatsink Module**

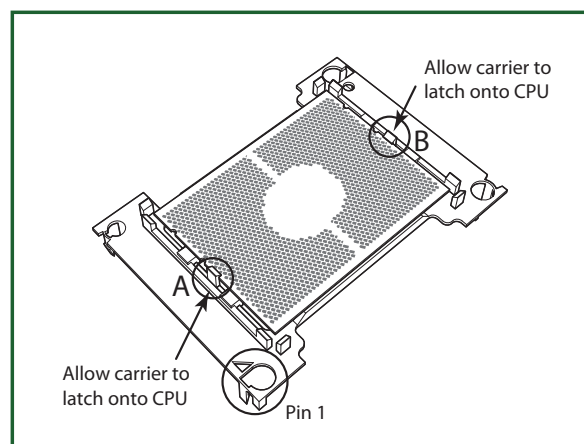
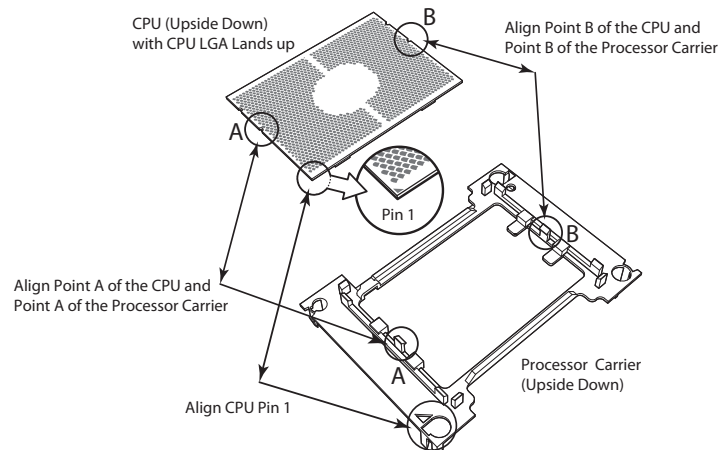


**Bottom View**

### ***Creating the Processor Carrier Assembly***

To install a processor into the processor carrier, follow the steps below:

1. Hold the processor with the LGA lands (gold contacts) facing up. Locate the small, gold triangle in the corner of the processor and the corresponding hollowed triangle on the processor carrier. These triangles indicate pin 1. See the images below.
2. Using the triangles as a guide, carefully align and place Point A of the processor into Point A of the carrier. Then gently flex the other side of the carrier for the processor to fit into Point B.
3. Examine all corners to ensure that the processor is firmly attached to the carrier.

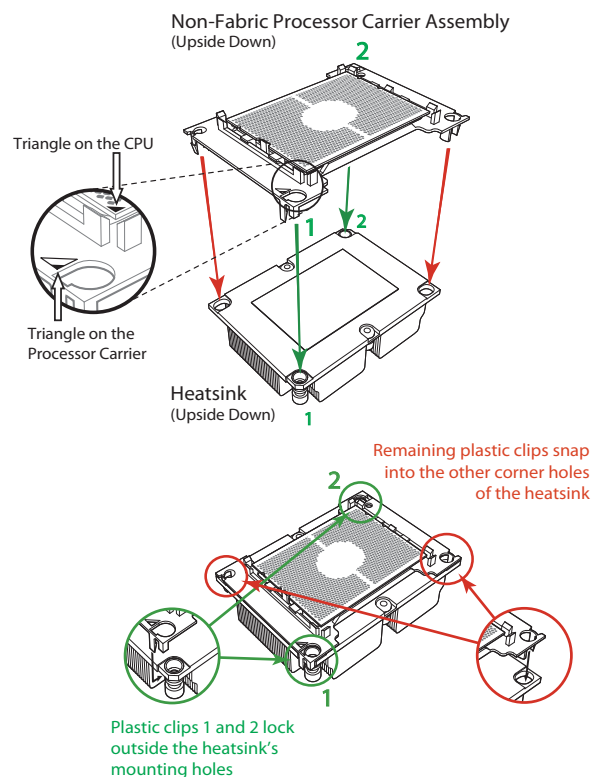


**Processor Carrier Assembly**

### Assembling the Processor Heatsink Module

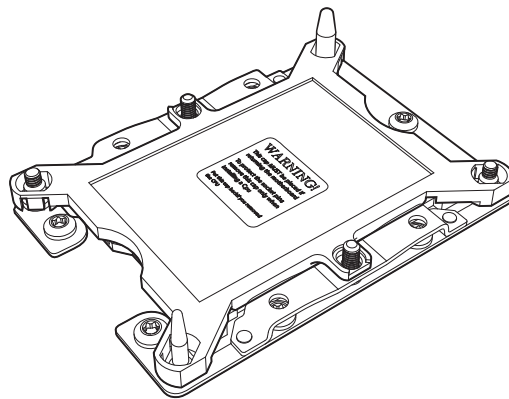
After creating the processor carrier assembly, mount it onto the heatsink to create the processor heatsink module (PHM):

1. Note the label on top of the heatsink, which marks the heatsink mounting holes as 1, 2, 3, and 4. If this is a new heatsink, the thermal grease has been pre-applied on the underside. Otherwise, apply the proper amount of thermal grease.
2. Turn the heatsink over with the thermal grease facing up. Hold the processor carrier assembly so the processor's gold contacts are facing up, then align the triangle on the assembly with hole 1 of the heatsink. Press the processor carrier assembly down. The plastic clips of the assembly will lock outside of holes 1 and 2, while the remaining clips will snap into their corresponding holes.
3. Examine all corners to ensure that the plastic clips on the processor carrier assembly are firmly attached to the heatsink.

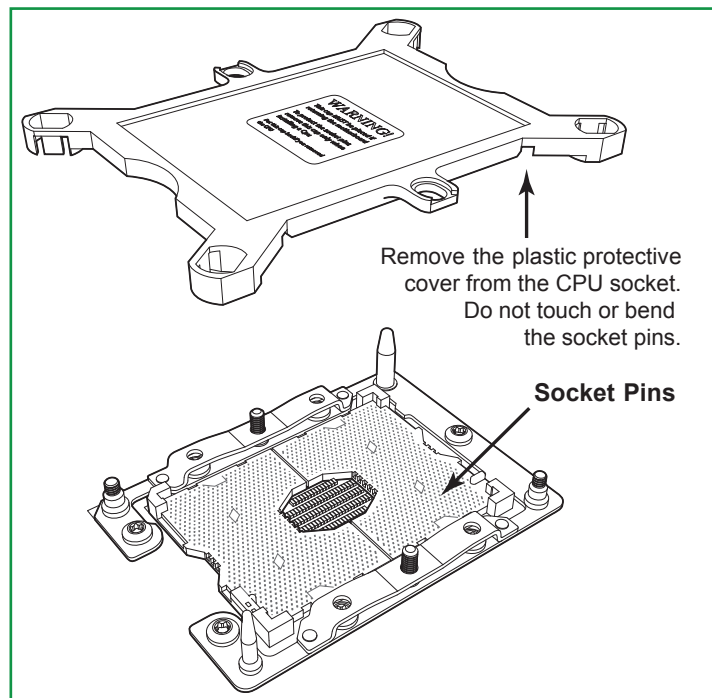


### ***Preparing the CPU Socket for Installation***

This motherboard comes with a plastic protective cover on the CPU socket. Remove it carefully to install the Processor Heatsink Module (PHM).



**CPU Socket with Plastic Protective Cover**

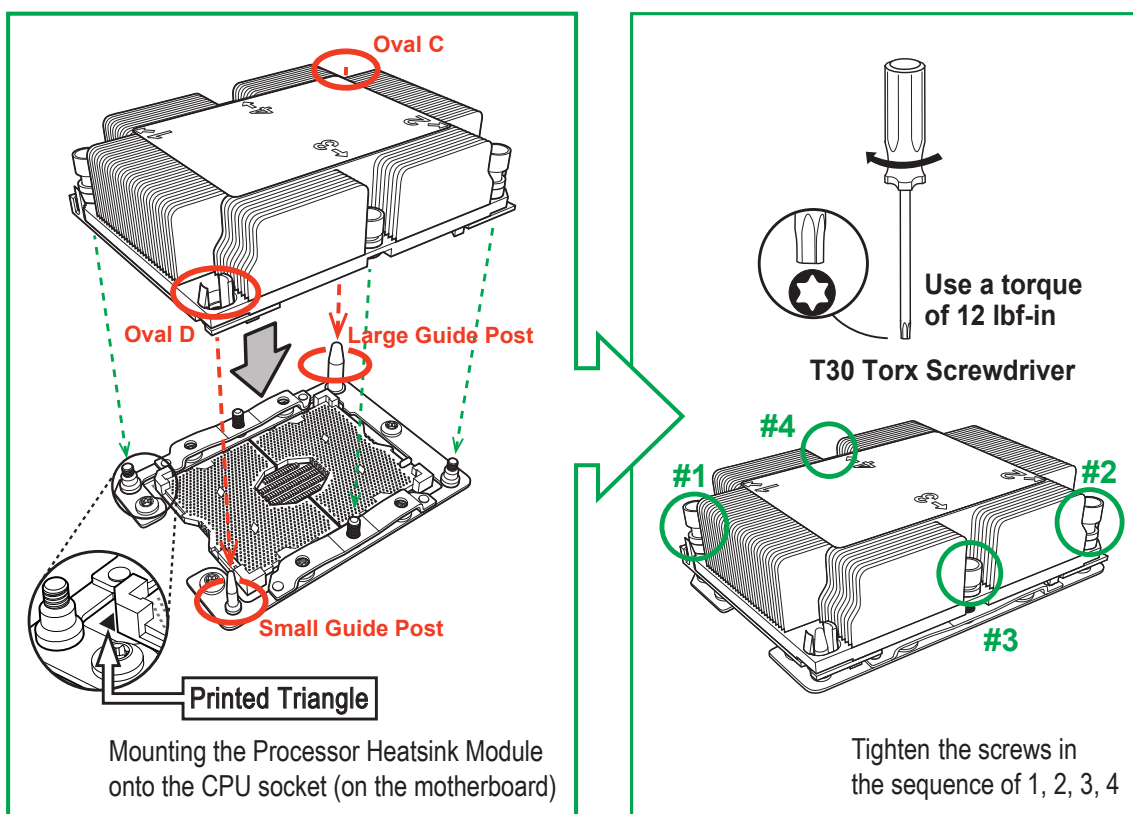




### Installing the Processor Heatsink Module

After assembling the Processor Heatsink Module (PHM), install it onto the CPU socket:

1. Align hole 1 of the heatsink with the printed triangle on the CPU socket. See the left image below.
2. Make sure all four holes of the heatsink are aligned with the socket before gently placing the heatsink on top.
3. With a T30 Torx-bit screwdriver, gradually tighten screws #1 – #4 to assure even pressure. The order of the screws is shown on the label on top of the heatsink. To avoid damaging the processor or socket, do not use a force greater than 12 lbf-in when tightening the screws.
4. Examine all corners to ensure that the PHM is firmly attached to the socket.



If at any time the PHM must be removed, power off, then loosen the screws in the sequence of #4, #3, #2, and #1.

## Memory

### Memory Support

The X11SPW-CTF/-TF supports up to 384GB of RDIMM, 768GB of LRDIMM, and 1.5TB of 3DS LRDIMM DDR4 (288-pin) ECC memory with speeds of up to 2933MHz in six memory slots. Refer to the tables below for the recommended DIMM population order and additional memory information.

DDR4 Memory Support for 81xx/61xx/51xx/41xx/31xx Processors						
Type	Ranks Per DIMM and Data Width	DIMM Capacity (GB)		Speed (MT/s)		
				One Slot per Channel	Two Slots per Channel	
		DRAM Density		One DIMM per Channel	One DIMM per Channel	Two DIMMs per Channel
		4 Gb	8 Gb	1.2 Volts	1.2 Volts	1.2 Volts
RDIMM	SRx4	4 GB	8 GB	2666	2666	2666
	SRx8	8 GB	16 GB			
	DRx8	8 GB	16 GB			
	DRx4	16 GB	32 GB			
RDIMM 3Ds	QRX4	N/A	2H-64GB			
	8RX4	N/A	4H-128GB			
LRDIMM	QRx4	32 GB	64 GB			
LRDIMM 3Ds	QRx4	N/A	2H-64GB			
	8Rx4	N/A	4H-128 GB			

DDR4 Memory Support for 82xx/62xx/52xx/42xx/32xx Processors							
Type	Ranks Per DIMM and Data Width	DIMM Capacity (GB)			Speed (MT/s)		
					One Slot per Channel	Two Slots per Channel	
		DRAM Density			One DIMM per Channel	One DIMM per Channel	Two DIMMs per Channel
		4 Gb*	8 Gb	16 Gb	1.2 Volts	1.2 Volts	1.2 Volts
RDIMM	SRx4	4 GB	8 GB	16 GB	2933**	2933**	2933**
	SRx8	8 GB	16 GB	32 GB			
	DRx8	8 GB	16 GB	32 GB			
	DRx4	16 GB	32 GB	64 GB			
RDIMM 3Ds	QRX4	N/A	2H-64GB	2H-128GB			
	8RX4	N/A	4H-128GB	4H-256GB			
LRDIMM	QRx4	32 GB	64 GB	128 GB			
LRDIMM 3Ds	QRx4	N/A	2H-64GB	2H-64GB			
	8Rx4	N/A	4H-128 GB	4H-256 GB			

\*4Gb DRAM density is only supported on speeds up to 2666 MT/s

\*\*Only the 82xx and 62xx series support 2933 MT/s; for other processors, memory speed as supported by the CPU.

Check the Supermicro website for possible updates to memory support.

### ***Memory Population Guidelines***

- All DIMMs must be DDR4.
- Balance memory. Using unbalanced memory topology, such as populating two DIMMs in one channel while populating one DIMM in another channel, reduces performance. It is not recommended for Supermicro systems.
- In dual-CPU configurations, memory must be installed in the slots associated with the installed CPUs.

### ***Guidelines Regarding Mixing DIMMs***

- Populating slots with a pair of DIMM modules of the same type and size results in interleaved memory, which improves memory performance.
- Use memory modules of the same type and speed, as mixing is not allowed.
- x4 and x8 DIMMs can be mixed in the same channel.
- Mixing of LRDIMMs and RDIMMs is not allowed in the same channel, across different channels, and across different sockets.
- Mixing of non-3DS and 3DS LRDIMM is not allowed in the same channel, across different channels, and across different sockets.

### ***DIMM Construction***

- RDIMM (*non-3DS*) Raw Cards: A/B (2Rx4), C (1Rx4), D (1Rx8), E (2Rx8)
- 3DS RDIMM Raw Cards: A/B (4Rx4)
- LRDIMM (*non-3DS*) Raw Cards: D/E (4Rx4)
- 3DS LRDIMM Raw Cards: A/B (8Rx4)

### ***Memory Population Sequence***

**Blue slots versus black slots:** Install the first DIMM in the blue memory slot, which is the first of a memory channel. Then, if using two DIMMs per channel, install the second DIMM in the black slot.

The following memory population sequence table was created based on guidelines provided by Intel to support Supermicro motherboards. The diagram is for illustrative purposes; your motherboard may look different.

Memory Population, 6 DIMM Slots	
DIMMs	Memory Population Sequence
1	DIMMA1
2	DIMMA1 / DIMMD1
3	DIMMC1 / DIMMB1 / DIMMA1
4	DIMMB1 / DIMMA1 / DIMMD1 / DIMME1
5*	DIMMC1 / DIMMB1 / DIMMA1 / DIMMD1 / DIMME1
6	DIMMC1 / DIMMB1 / DIMMA1 / DIMMD1 / DIMME1 / DIMMF1

\*Unbalanced, not recommended.

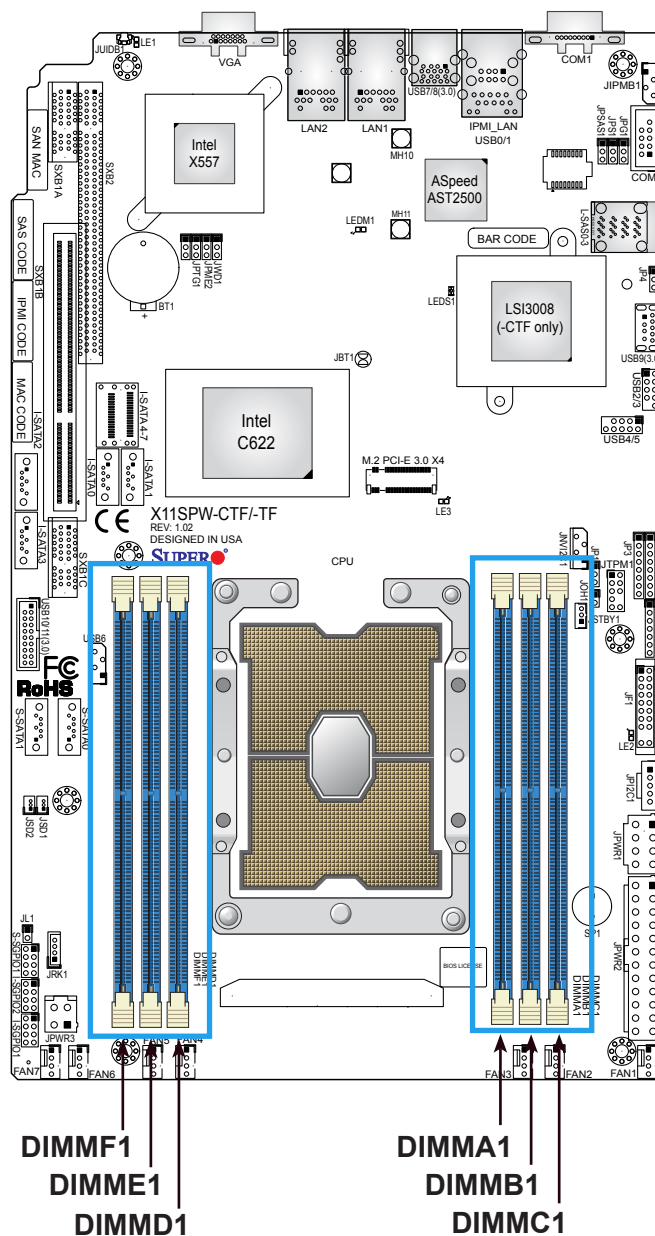


Figure 2-5. Memory Slots

## Installing Memory

### ESD Precautions

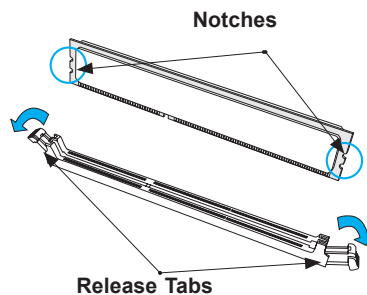
Electrostatic Discharge (ESD) can damage electronic components including memory modules. To avoid damaging DIMM modules, it is important to handle them carefully. The following measures are generally sufficient.

- Use a grounded wrist strap designed to prevent static discharge.
- Handle the memory module by its edges only.
- Put the memory modules into the antistatic bags when not in use.

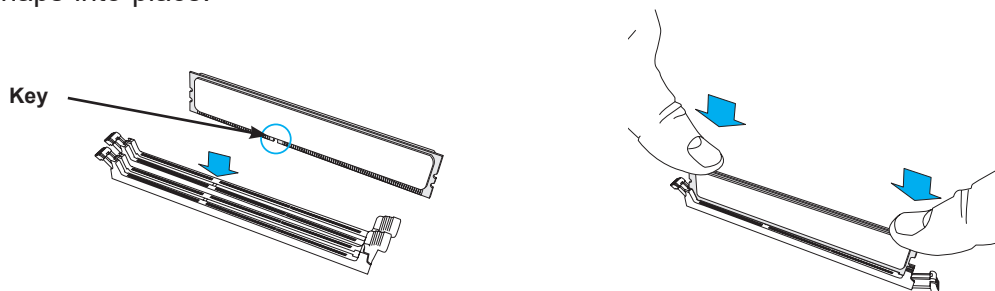
### Installing Memory

Begin by removing power from the system as described in Section 3.1. Follow the memory population sequence in the table above.

1. Push the release tabs outwards on both ends of the DIMM slot to unlock it.



2. Align the key of the DIMM with the receptive point on the memory slot and with your thumbs on both ends of the module, press it straight down into the slot until the module snaps into place.



3. Press the release tabs to the locked position to secure the DIMM module into the slot.

**Caution:** Exercise extreme caution when installing or removing memory modules to prevent damage to the DIMMs or slots.

### Removing Memory

To remove a DIMM, unlock the release tabs then pull the DIMM from the memory slot.

## Motherboard Battery

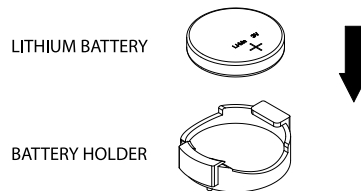
The motherboard uses non-volatile memory to retain system information when system power is removed. This memory is powered by a lithium battery residing on the motherboard.

### *Replacing the Battery*

Begin by removing power from the system as described in section 3.1.

1. Push aside the small clamp that covers the edge of the battery. When the battery is released, lift it out of the holder.
2. To insert a new battery, slide one edge under the lip of the holder with the positive (+) side facing up. Then push the other side down until the clamp snaps over it.

**Note:** Handle used batteries carefully. Do not damage the battery in any way; a damaged battery may release hazardous materials into the environment. Do not discard a used battery in the garbage or a public landfill. Please comply with the regulations set up by your local hazardous waste management agency to dispose of your used battery properly.



**Figure 2-6. Installing the Onboard Battery**

**Warning:** There is a danger of explosion if the onboard battery is installed upside down (which reverses its polarities). This battery must be replaced only with the same or an equivalent type recommended by the manufacturer (CR2032).

## 2.4 Chassis Components

### Installing the Storage Drives

The E403-9P-FN2T can accommodate up to four fixed 2.5" SATA storage drives that are installed to a drive cage, and then inserted into the chassis.

**Note:** Enterprise level hard disk drives are recommended for use in Supermicro chassis and servers. For information on recommended HDDs, visit the Supermicro website at <https://www.supermicro.com/products/nfo/Ultra.cfm>.

#### *Installing the Drive*

The motherboard should be installed before installing the drives.

1. Remove the system power as described in section 2.1 and remove the chassis cover.
2. Remove the two screws that secure the drive cage to the chassis, as shown.

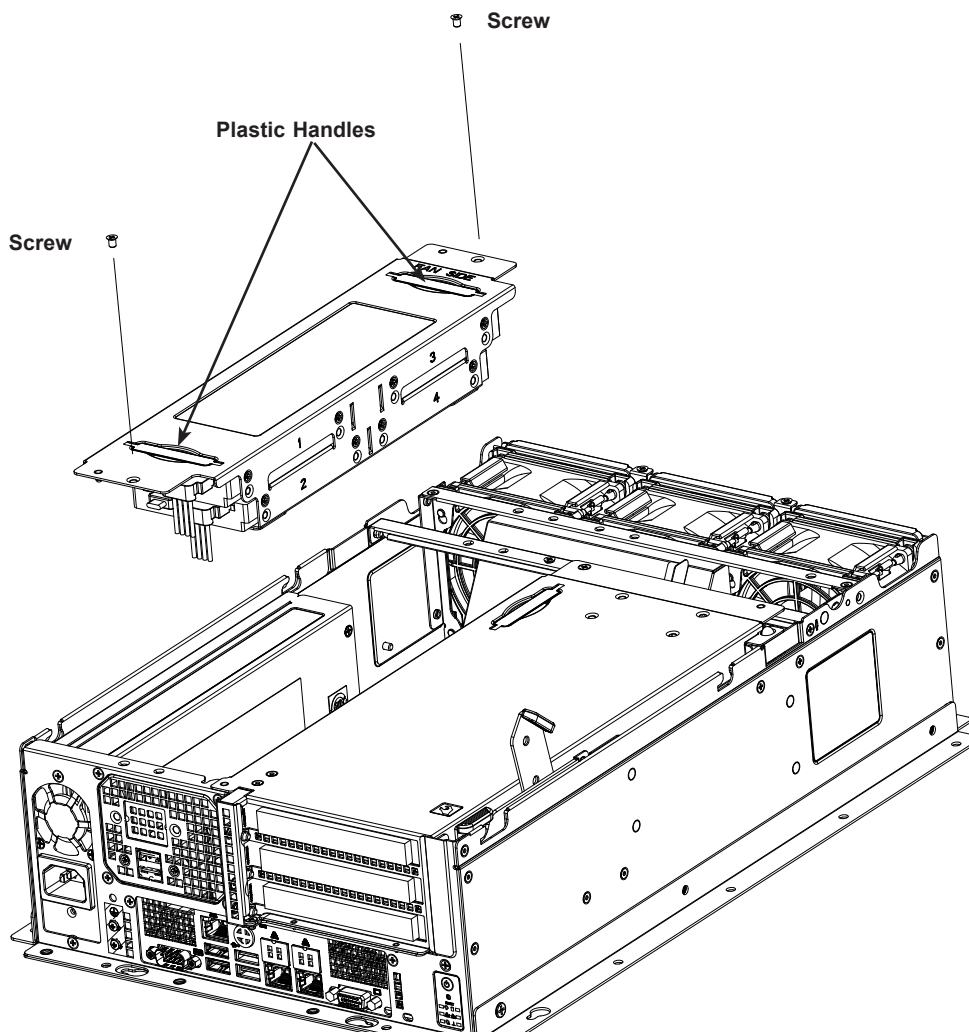
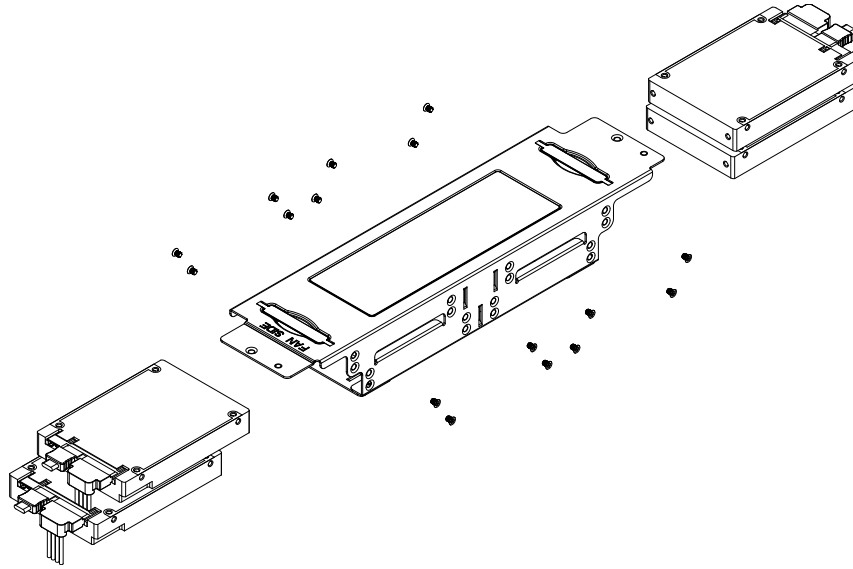


Figure 2-7. Preparing to Install the Storage Drives

3. Pull the drive cage upwards using the provided plastic handles.



**Figure 2-8. Installing the Drives**

4. Place the drives inside the cage, stacked up to two units on each end, then secure them inside the drive bays with the included screws, as shown above.
5. Connect the drive data and power cables.
6. Secure the hard drive cage back to the chassis with the screws previously set aside.
7. Attach the cables to the appropriate motherboard connectors.
8. Reinstall the chassis cover and power up the system.



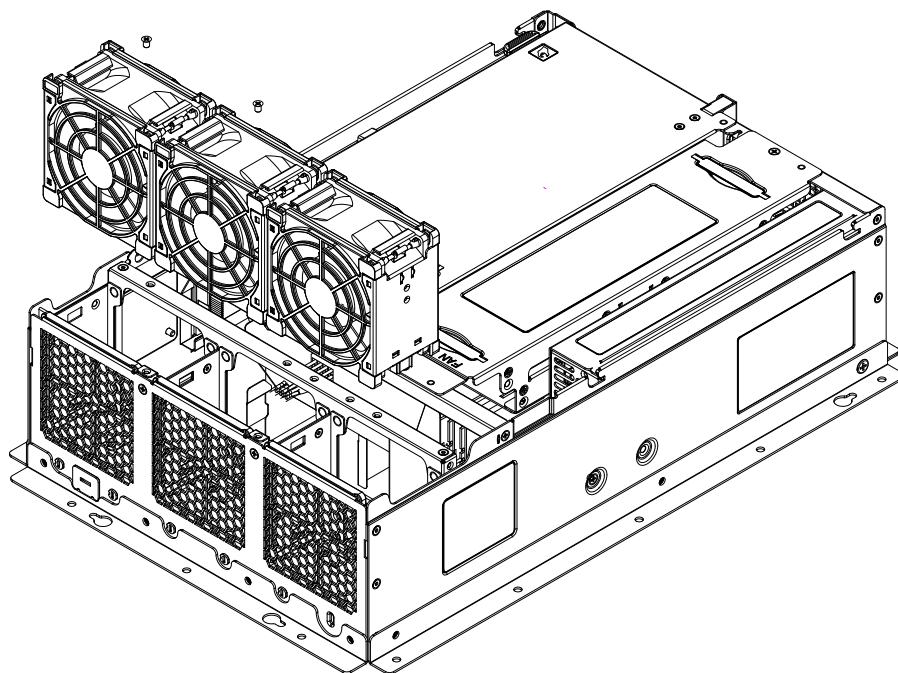
## System Cooling

The system includes three replaceable 8-cm x 3.8-cm fans and shrouds to direct air flow.

**Caution:** Since the system continues to draw a small amount of power in standby mode (and fans are off), there is a potential for overheating if the system is idle for a long time. In this situation, there is no warning from the overheat/fan fail LED.

### *Installing or Replacing the System Fan*

1. Power down the system and remove the AC power cord and the chassis cover.
2. Remove the fan power cables from motherboard.
3. Remove the screws securing the fan brace to the chassis and save them.
4. Lift the fan brace containing the system fans out of the chassis.
5. If replacing a fan, remove the old fan from the fan brace and install the new fan.
6. Align the new fan with the holes in the fan brace.
7. Secure the fan to the fan brace using the screws previously set aside.
8. Screw the fan brace on to the chassis using the screws previously set aside.
9. Reconnect the fan cable to motherboard.
10. Reinstall the chassis top cover, reconnect the AC power cord and power up the system.



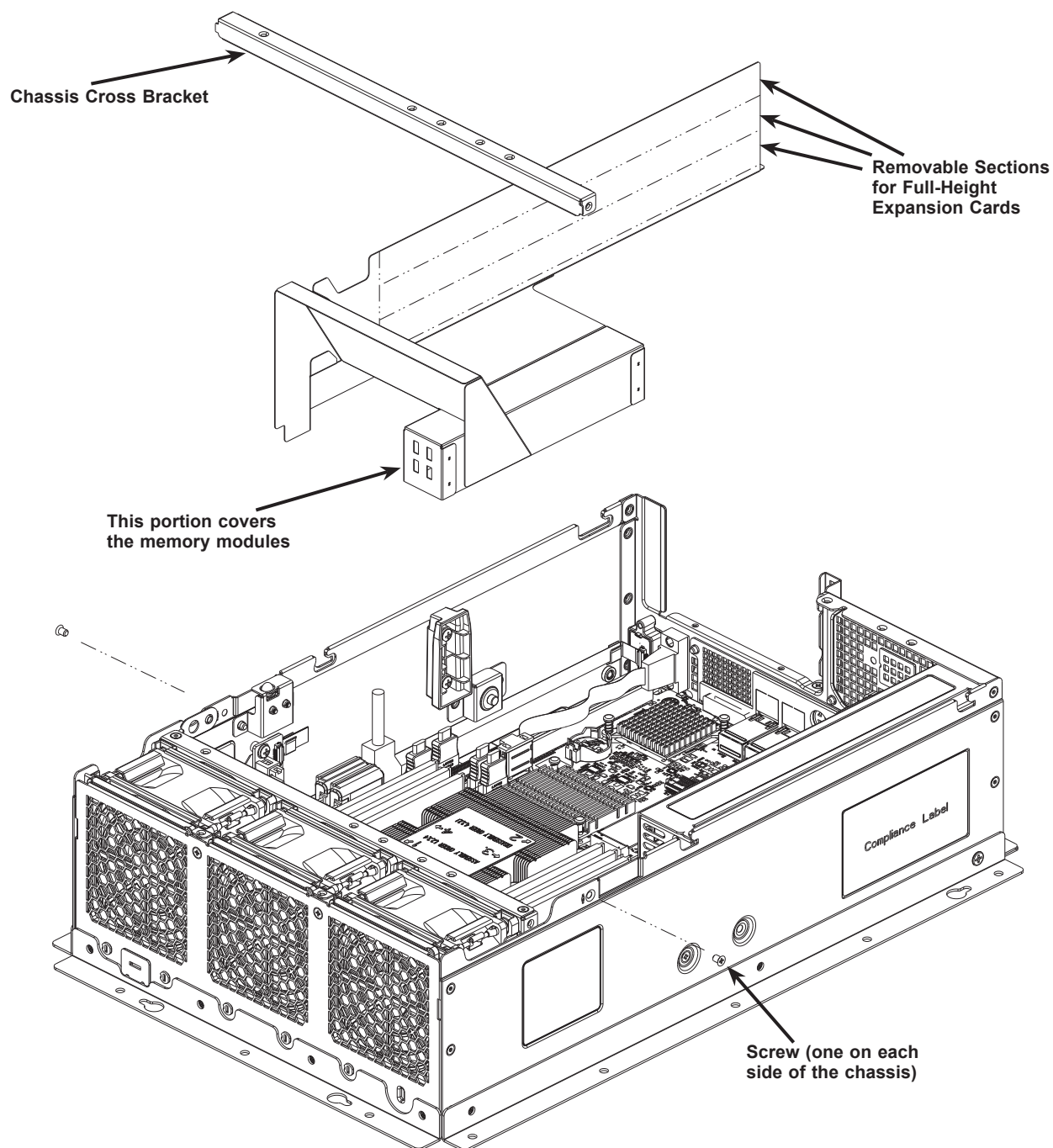
**Figure 2-9. System Fans**

### ***Installing the Air Shrouds***

Air shroud concentrates airflow to maximize fan efficiency. It does not require screws to install.

#### ***Installing the Air Shrouds***

1. If you are installing full height PCIe expansion cards, you must cut one, two, or three sections of the shroud to create space for the cards.
2. Remove the chassis cross bracket by removing the screw from each side of the chassis.



**Figure 2-10. Installing the Memory Air Shroud**

3. Place the air shroud. The small rectangular portion covers the DIMMA1/DIMMB1/  
DIMMC1 memory modules.
4. Replace the chassis cross bracket.

### ***Checking the Server Air Flow***

- Make sure there are no objects to obstruct airflow in and out of the server.
- Do not operate the server without drives or drive carriers in the drive bays.
- Use only recommended server parts.
- Make sure no wires or foreign objects obstruct air flow through the chassis. Pull all excess cabling out of the airflow path or use shorter cables.

The control panel LEDs display system heat status. See “Control Panel” in Chapter 1 for details.

### ***Overheating***

There are several possible responses if the system overheats.

- Use the LEDs to determine the nature of the overheating condition.
- Confirm that the chassis covers are installed properly.
- Make sure all fans are present and operating normally.
- Check the routing of the cables.
- Verify that the heatsinks are installed properly.

## **Expansion Cards**

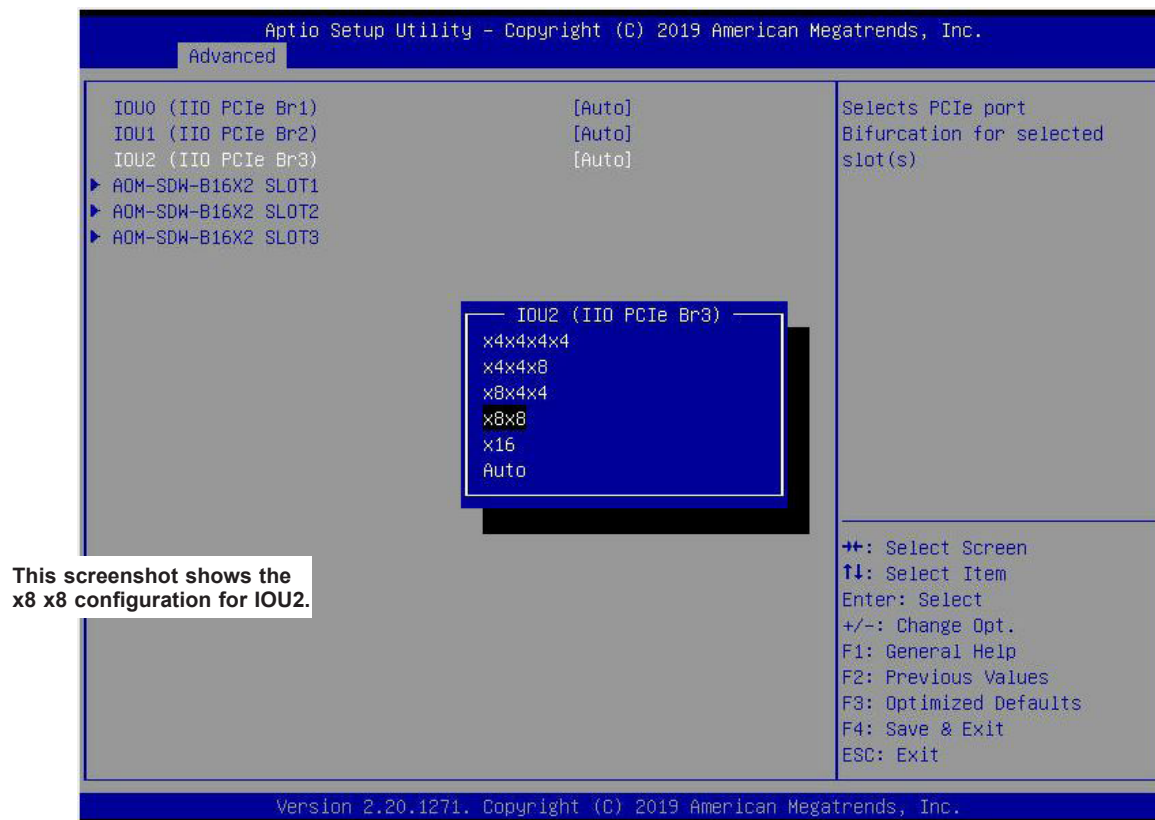
The system supports up to three PCIe cards on a riser card: One PCIe 3.0 x16 slot and two PCIe 3.0 x8 slots, OR two PCIe 3.0 x16 slots. Use the jumper on the riser card, JSEL1, to configure.

<b>Riser Card Jumper, JSEL1</b>			
<b>Jumper Setting</b>	<b>Slot1</b>	<b>Slot2</b>	<b>Slot3</b>
1-2	x16	N/A	x16
2-3 (default)	x8	x8	x16

The system supports full height or low profile expansion cards, although you must modify the air shroud when using full height.

**Note:** When you add or change an expansion card, *and* if you load the BIOS default, clear CMOS, or update your BIOS, you must configure:

**UEFI BIOS > Advanced tab > Chipset Configuration > North Bridge > IIO Configuration > CPU Configuration.** The setting for **IOU2** is x8x8 or x16. The setting for **IOU1** is Auto.



### ***Installing or Replacing the Expansion Card Module***

1. Power down the system as described in Section 2.1 and remove the chassis cover.
2. Remove the screw, as shown in the diagram on the following page.
3. Pull the locking lever up to release the expansion card module.
4. Pull the expansion card module upward with the aid of the plastic handle.
5. Be sure the JSEL1 jumper is set as you want it.
6. In the removed expansion card module, install expansion cards. For full height cards, install first in the top-most slot, then the middle, and then the bottom slot. Note that you must also modify the main air shroud to fit full height cards. (See previous section.)
7. Replace the expansion card module.
8. Reinstall the chassis top cover, reconnect the AC power cord and power up the system.

**Caution:** If installing three NVIDIA T4 GPUs in the expansion cards module, the processor must consume less than or equal to 165W TDP.

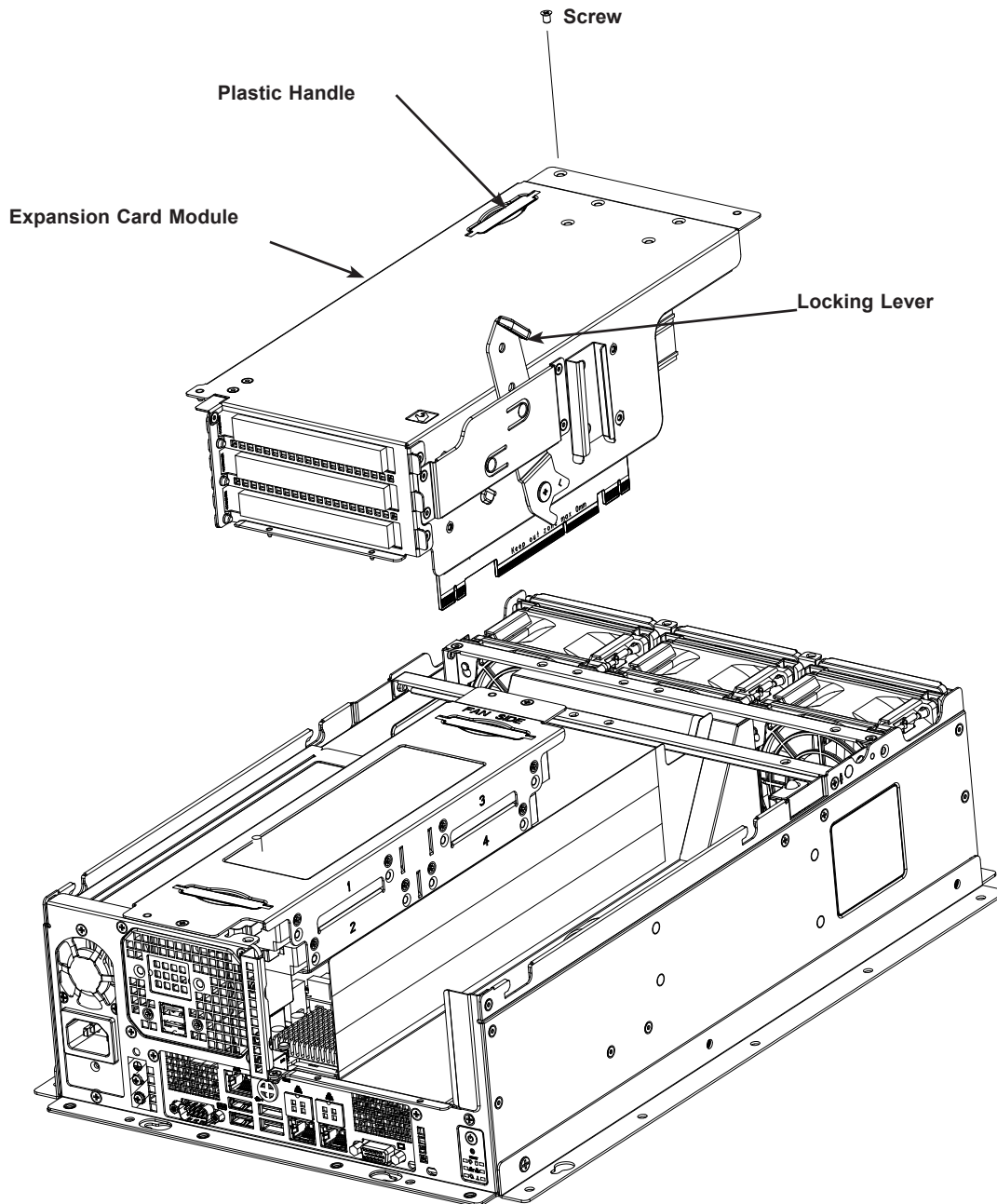


Figure 2-11. Expansion Card Module

## M.2 Solid State Drives

An M.2 solid state drive (SSD) can be installed on the motherboard, supporting PCIe and SATA.

Two lengths are supported—80mm or 110mm. For each length, there is an hole in the storage adapter card for a plastic standoff.

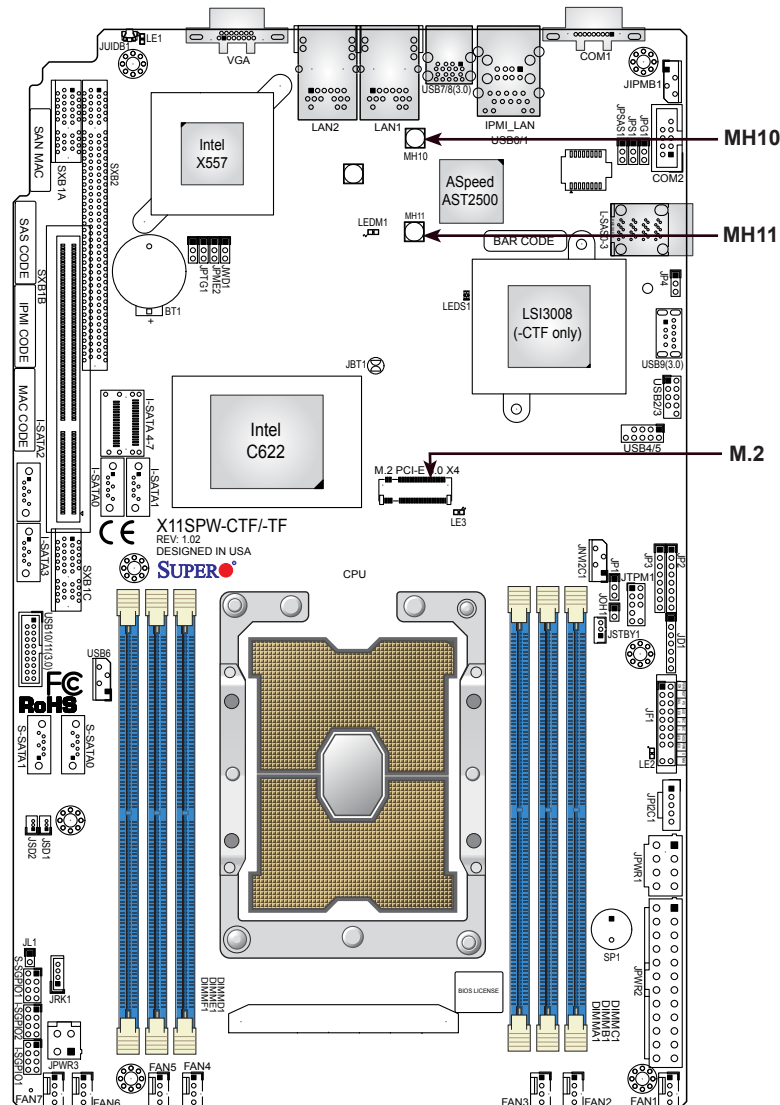
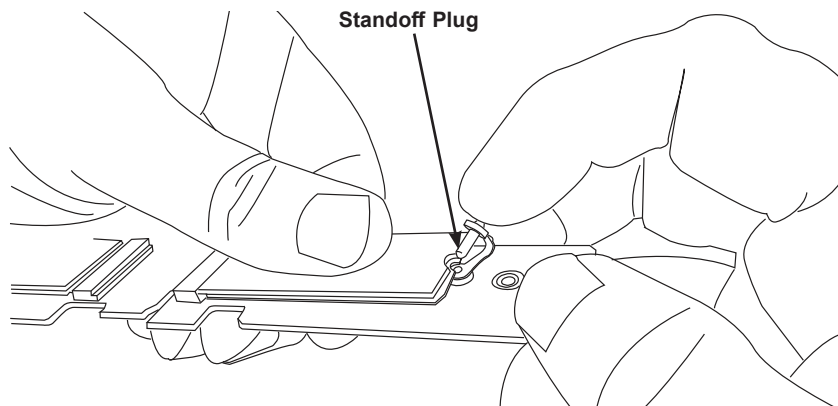


Figure 2-12. M.2 SSD on the Motherboard

### ***Installing an M.2 SSD***

**Caution:** Use industry-standard anti-static equipment, such as gloves or wrist strap, and follow precautions to avoid damage caused by ESD.

Locate the M.2 slot on the motherboard and the standoff holes for each possible length card, MH10 and MH11. There is a plastic standoff in one of the holes. If necessary move the plastic stand off to the correct hole, Slide the M.2 SSD into the socket, and secure it by pushing the plug into the standoff.



**Figure 2-13. Inserting the Standoff Plug**

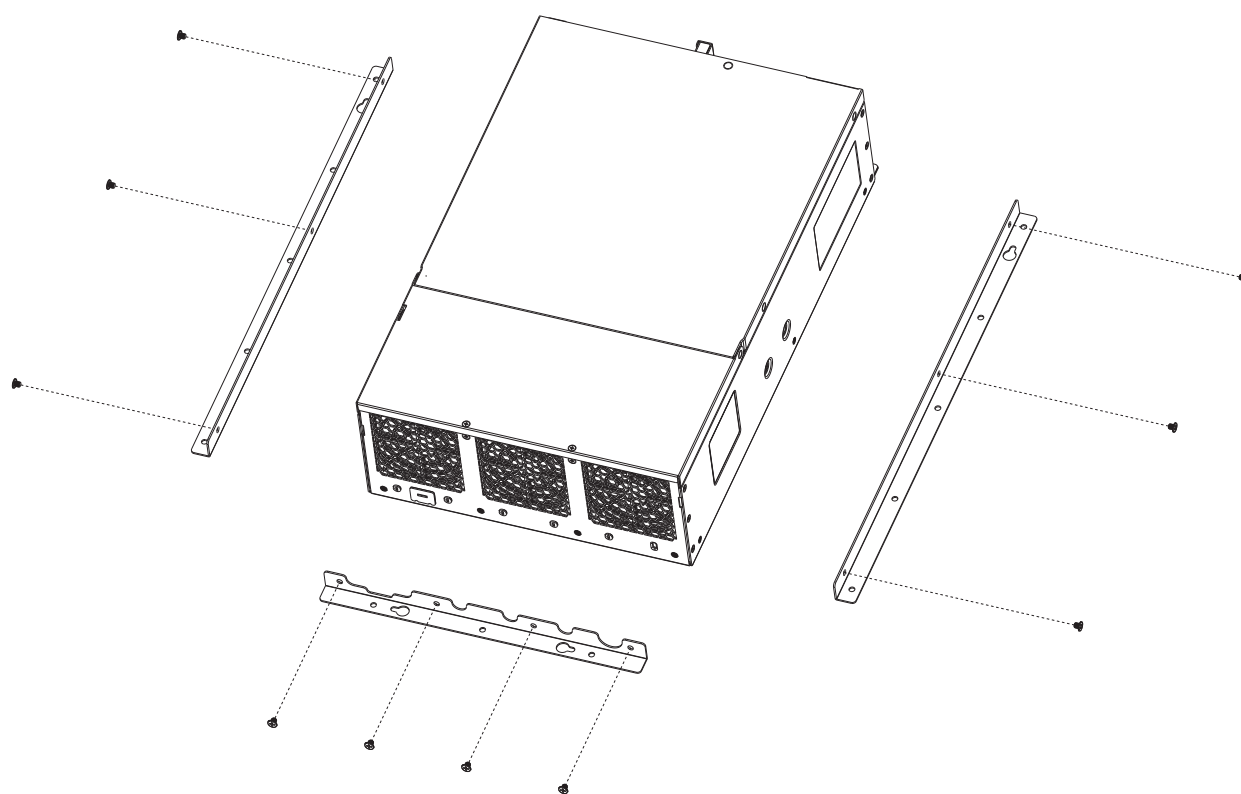
**(Note:** Your installation looks different, but the standoff functions the same.)

## Wall Mount Procedure

The CSE-403iF can be mounted directly on a surface using the mounting brackets and mounting screws or nails. The following procedure describes how to mount the system to a sturdy surface. Note that formal testing has only been performed on dry wall. Use screws or nails of sufficient strength to support the weight of the system.

### *Mounting the Chassis*

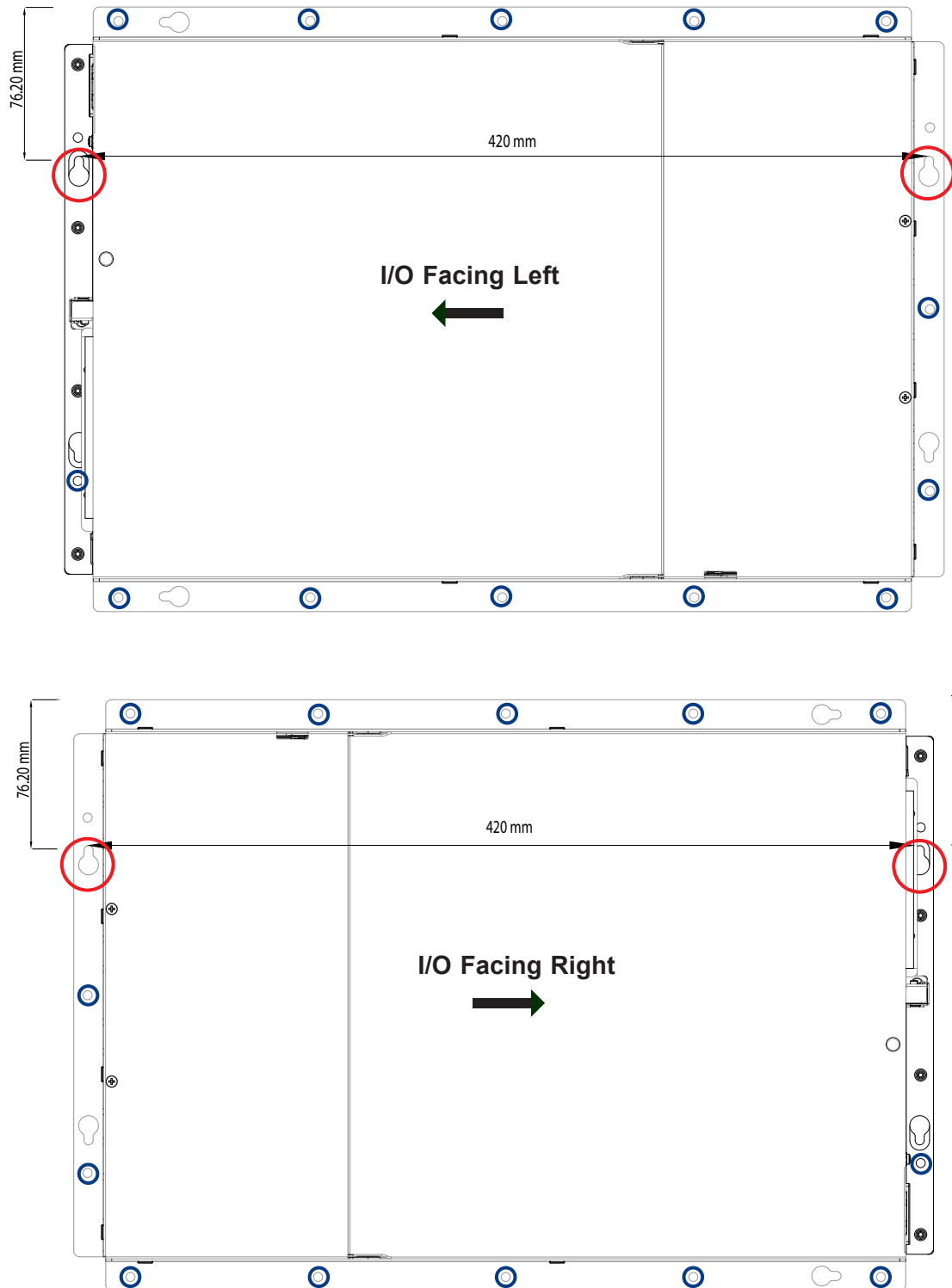
1. Attach the three mounting brackets to the chassis using the ten M4xL4 screws that came with the system. See the figure below. The mounting bracket along the I/O panel is pre-attached.



**Figure 2-14. Installing the Mounting Brackets**



2. Decide on an orientation to mount the server. The server can only be mounted with the I/O panel facing left or right.



**Figure 2-15. Possible Mounting Orientations**

3. Mark two keyhole spots on the surface where the server will be mounted. The two keyholes for each orientation are circled in red. See Figure 2-15.
4. Install the two keyhole screws or nails.
5. Mount the server onto the two screws or nails.
6. Install screws or nails in all the holes circled in blue. See Figure 2-15.

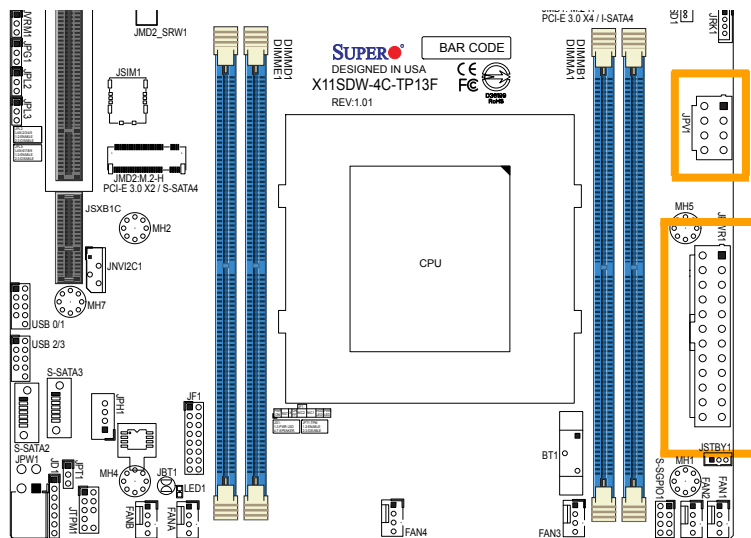
**Note:** The weight of a fully populated system can reach 21 lbs (8.3 kg).

## Power Supply

The E403-9P-FN2T includes an internal power supply that can be replaced.

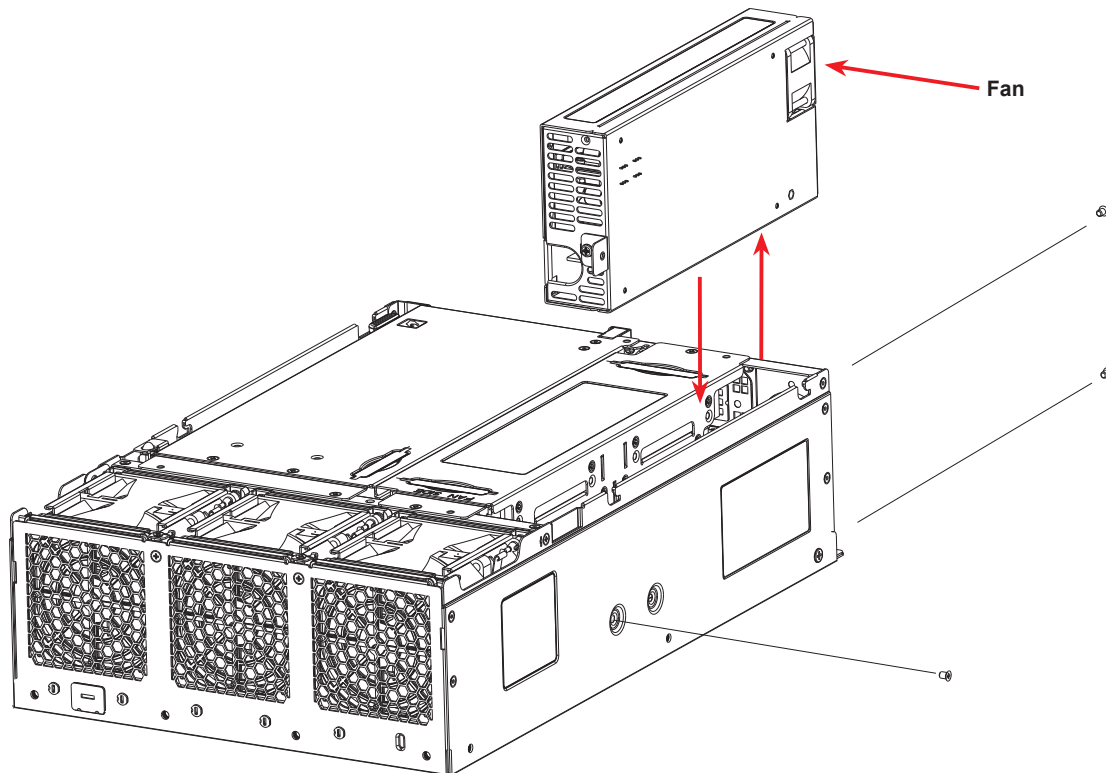
### Removing and Replacing the Power Supply

1. Remove the power cord by following the steps in Section 2.1, and remove the top cover.
2. To access the motherboard, remove the expansion card module and the hard drives as described previously. Make sure to disconnect the extension cables from the motherboard and the power supply.
3. With access to the motherboard, remove the ATX power connection (JPWR1) and the 8-pin power connection (JPV1).



**Figure 2-16. Removing the ATX and 8-pin Connections**

4. Remove three screws on the chassis as shown in Figure 2-17 and set them aside.
5. Lift the power supply out of the chassis.
6. Place a new power supply into the chassis with the fan at the top rear. Install the three screws.
7. Reconnect the ATX and 8-pin power connection to the motherboard.
8. If necessary reconnect the expansion card power supply and replace the expansion card module.
9. Reconnect the hard drive data and power extension cables and replace the hard drive cage.
10. Replace the chassis top cover.
11. Reconnect the power supply cord to the power supply inlet and the power source.



**Figure 2-17. Removing the Power Supply**

# Chapter 3

## Motherboard Connections

This section describes the connections on the motherboard and provides pinout definitions. Note that depending on how the system is configured, not all connections are required. The LEDs on the motherboard are also described here. A motherboard layout indicating component locations may be found in Chapter 1.

Please review the Safety Precautions in Chapter 3 before installing or removing components.

### 3.1 Power Connections

Two power connections supply the motherboard and several more supply for onboard devices.

#### Main ATX Power Supply Connector

The primary power supply connector (JPWR2) meets the ATX SSI EPS 24-pin specification. You must also connect the 8-pin (JPWR1) processor power connector to your power supply.

ATX Power 24-pin Connector Pin Definitions			
Pin#	Definition	Pin#	Definition
13	+3.3V	1	+3.3V
14	-12V	2	+3.3V
15	GND	3	GND
16	PS_ON	4	+5V
17	GND	5	GND
18	GND	6	+5V
19	GND	7	GND
20	Res (NC)	8	PWR_OK
21	+5V	9	5VSB
22	+5V	10	+12V
23	+5V	11	+12V
24	GND	12	+3.3V

#### Secondary Power Connector

JPWR1 must also be connected to the power supply. This connector is used to power the processor.

+12V 8-pin Power Pin Definitions	
Pin#	Definition
1 - 4	GND
5 - 8	+12V

Required Connection

### Power Connector for GPU

JPWR3 is a 4-pin 12V power connector for GPU cards that requires an extra 12V power with up to 75W.

8-pin GPU Power Pin Definitions	
Pin#	Definition
1 - 4	Ground
5 - 8	+12 V

## 3.2 Headers and Connectors

### Fan Headers

There are seven fan headers on the motherboard. These are 4-pin fan headers, although pins 1-3 are backward compatible with traditional 3-pin fans. Four-pin fans allow fan speeds to be controlled by Thermal Management in IPMI. When using the Thermal Management setting, use all 3-pin fans or all 4-pin fans.

Fan Header Pin Definitions	
Pin#	Definition
1	Ground (Black)
2	+12V (Red)
3	Tachometer
4	PWM Control

### SGPIO Header

I-SGPIO1, I-SGPIO2 and S-SGPIO1 (Serial General Purpose Input/Output) headers are used to communicate with the enclosure management chip on the backplane.

SGPIO Header Pin Definitions			
Pin#	Definition	Pin#	Definition
1	NC	2	NC
3	Ground	4	DATA Out
5	Load	6	Ground
7	Clock	8	NC

NC = No Connection

### Disk-On-Module Power Connector

The Disk-On-Module (DOM) power connectors at JSD1 and JSD2 provide 5V power to a solid-state DOM storage devices connected to one of the SATA ports.

DOM Power Pin Definitions	
Pin#	Definition
1	5V
2	Ground
3	Ground

## TPM Header

The JTPM1 header is used to connect a Trusted Platform Module (TPM)/Port 80, which is available from Supermicro. A TPM/Port 80 connector is a security device that supports encryption and authentication in hard drives. It allows the motherboard to deny access if the TPM associated with the hard drive is not installed in the system. Please go to the following link for more information on the TPM: <http://www.supermicro.com/manuals/other/TPM.pdf>.

Trusted Platform Module/Port 80 Header Pin Definitions			
Pin#	Definition	Pin#	Definition
1	P3V3	2	SPI_TPM_CS_N
3	PCle_RESET_N#	4	SPI_PCH_MISO
5	SPI_PCH_CLK#	6	Ground
7	SPI_PCH_MOSI	8	N/A
9	JTPM1_P3V3A	10	IRQ_TPM_SPIN_N

## Standby Power

The Standby Power header is located at JSTBY1 on the motherboard. See the table below for pin definitions.

Standby Power Pin Definitions	
Pin#	Definition
1	+5V Standby
2	GND
3	No Connection

## Internal Speaker/Buzzer

The Internal Speaker/Buzzer (SP1) is used to provide audible indications for various beep codes.

Internal Buzzer Pin Definitions		
Pin#	Definition	
1	Pos (+)	Beep In
2	Neg (-)	Alarm Speaker

## 4-pin BMC External I<sup>2</sup>C Header

A System Management Bus header for IPMI 2.0 is located at JIPMB1. Connect a cable to this header to use the IPMB I<sup>2</sup>C connection on your system.

External I <sup>2</sup> C Header Pin Definitions	
Pin#	Definition
1	Data
2	GND
3	Clock
4	No Connection



### Power SMB (I<sup>2</sup>C) Header

A Power System Management Bus (I<sup>2</sup>C) header at JPI<sup>2</sup>C1 monitors the power supply, fan, and system temperatures.

Power SMB Header Pin Definitions	
Pin#	Definition
1	Clock
2	Data
3	PMBUS_Alert
4	GND
5	+3.3V

### Overheat/Fan Fail LED Header

Connect an LED indicator to JOH1 to display warnings of chassis overheating and fan failure.

Overheat LED Header Status	
State	Definition
Solid	Overheat
Blinking	Fan Fail

### Chassis Intrusion

A Chassis Intrusion header is located at JL1 on the motherboard. Attach the appropriate cable from the chassis to the header to inform you when the chassis is opened.

Chassis Intrusion Pin Definitions	
Pins	Definition
1	Intrusion Input
2	Ground

### RAID Key Header

A RAID Key header is located at JRK1 on the motherboard. It supports VMD used in creating optional advanced NVMe RAID configurations.

RAID Key Header Pin Definitions	
Pin#	Definition
1	Ground
2	RAID_KEY_PU
3	Ground
4	PCH_RAID_KEY

## NVMe I<sup>2</sup>C Header

Connector JNVI<sup>2</sup>C1 is a management header for the Supermicro AOC NVMe PCIe peripheral cards. Connect the I<sup>2</sup>C cable to this connector.

**Note:** When installing an NVMe device on the motherboard, connect the first NVMe port (JNVI<sup>2</sup>C1) first for your system to work properly.

## Power LED/Speaker

Pins 1-3 of JD1 are used for power LED indication, and pins 4-7 are for the speaker. Please note that the speaker connector pins (4-7) are used with an external speaker. If you wish to use the onboard speaker, you should close pins 6-7 with a cap.

PWR LED Connector Pin Definitions	
Pin#	Definition
1	JD1_PIN1
2	FP_PWR_LED
3	FP_PWR_LED

Speaker Connector Pin Definitions	
Pin#	Definition
4	P5V
5	Key
6	R_SPKPIN_N
7	R_SPKPIN

## SATA and SAS Ports

The X11SPW-CTF/-TF has eight I-SATA 3.0 ports and two S-SATA 3.0 ports that are supported by the Intel C622 chipset. In addition to the SATA 3.0 ports, the X11SPW-CTF has four SAS 3.0 ports that are supported by the LSI 3008 controller.

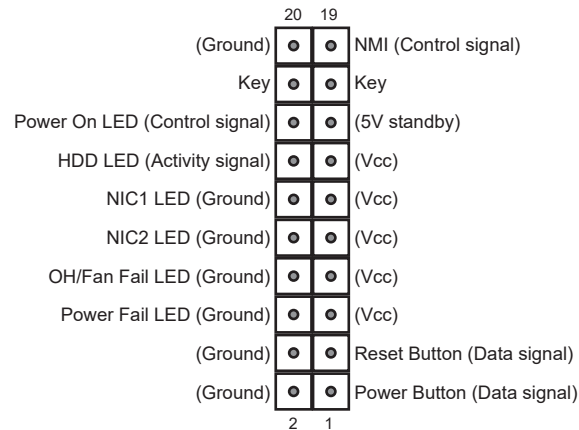
## M.2 Slot

M.2 is formerly known as Next Generation Form Factor (NGFF). The M.2 slot is designed for internal mounting devices. The X11SPW-CTF/-TF motherboard deploys an M key dedicated for SSD devices with the ultimate performance capability in a PCIe express 3.0 x4 interface for native PCIe SSD support. It can also support SATA devices.

## Control Panel

JF1 contains header pins for various control panel connections. See the figure below for the pin locations and definitions of the control panel buttons and LED indicators.

All JF1 wires have been bundled into a single cable to simplify this connection. Make sure the red wire plugs into pin 1 as marked on the motherboard. The other end connects to the control panel PCB board.



**Figure 3-1. JF1 Control Panel Pins**

### Power Button

The Power Button connection is located on pins 1 and 2 of JF1. Momentarily contacting both pins will power on/off the system. This button can also be configured to function as a suspend button (with a setting in the BIOS - see Chapter 6). To turn off the power when the system is in suspend mode, press the button for 4 seconds or longer.

Power Button Pin Definitions (JF1)	
Pin#	Definition
1	Signal
2	Ground

### Reset Button

The Reset Button connection is located on pins 3 and 4 of JF1. Attach it to a hardware reset switch on the computer case.

Reset Button Pin Definitions (JF1)	
Pin#	Definition
3	Reset
4	Ground

### Power Fail LED

The Power Fail LED connection is located on pins 5 and 6 of JF1.

Power Fail LED Pin Definitions (JF1)	
Pin#	Definition
5	3.3V
6	PWR Supply Fail

### Overheat (OH)/Fan Fail

Connect an LED cable to pins 7 and 8 of JF1 to use the Overheat/Fan Fail LED connections. The LED on pin 8 provides warnings of overheat or fan failure.

OH/Fan Fail Indicator Status	
Status	Definition
Off	Normal
On	Overheat
Flashing	Fan Fail

OH/Fan Fail LED Pin Definitions (JF1)	
Pin#	Definition
7	Blue LED
8	OH/Fan Fail LED

### NIC1/NIC2 (LAN1/LAN2)

The NIC (Network Interface Controller) LED connection for LAN port 1 is located on pins 11 and 12 of JF1, and the LED connection for LAN Port 2 is on Pins 9 and 10. Attach the NIC LED cables here to display network activity.

LAN1/LAN2 LED Pin Definitions (JF1)	
Pin#	Definition
9	NIC2 Activity LED
10	NIC2 Link LED
11	NIC1 Activity LED
12	NIC1 Link LED

### HDD LED/UID Switch

The HDD LED/UID Switch connection is located on pins 13 and 14 of JF1. Attach a cable to Pin 14 to show hard drive activity status. Attach a cable to Pin 13 to use UID switch. Refer to the table below for pin definitions.

HDD LED Pin Definitions (JF1)	
Pin#	Definition
13	3.3V Standby/UID Switch
14	HDD Active

### Power LED

The Power LED connection is located on pins 15 and 16 of JF1.

Power LED Pin Definitions (JF1)	
Pin#	Definition
15	3.3V
16	Power LED

### NMI Button

The non-maskable interrupt button header is located on pins 19 and 20 of JF1.

NMI Button Pin Definitions (JF1)	
Pin#	Definition
19	Control
20	Ground

### 3.3 Input/Output Ports

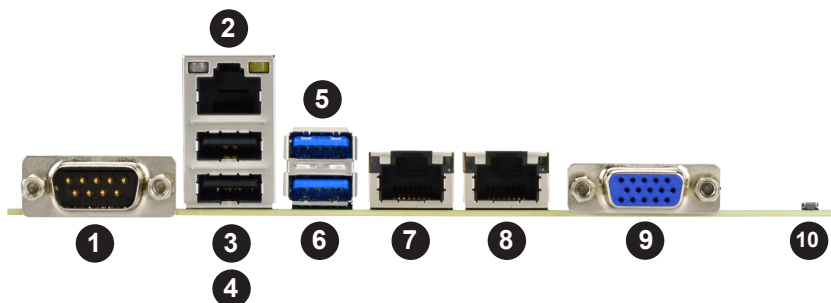


Figure 3-2. Rear I/O Ports

#	Description	#	Description
1	COM Port 1	6	USB7 (3.0)
2	Dedicated IPMI LAN	7	LAN1
3	USB1 (2.0)	8	LAN2
4	USB0 (2.0)	9	VGA Port
5	USB8 (3.0)	10	UID Switch

#### LAN Ports

Two 10 Gigabit Ethernet ports (LAN1, LAN2) are located on the I/O back panel. In addition, a dedicated IPMI LAN is located above USB ports 0/1 on the back panel. All of these ports accept RJ45 type cables. Refer to the LED Indicator section for LAN LED information.

#### Unit Identifier Switch/UID LED Indicator

A Unit Identifier (UID) switch and a UID LED indicator are located on the rear of the system. When you press the UID switch, both front and rear UID LED indicators are toggled on or off. The UID indicators provide easy identification of a system in a rack.

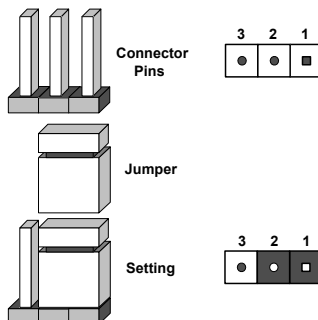
**Note:** UID can also be triggered using IPMI.

## 3.4 Jumpers

### Explanation of Jumpers

To modify the operation of the motherboard, jumpers are used to choose between optional settings. Jumpers create shorts between two pins to change the function associated with it. Pin 1 is identified with a square solder pad on the printed circuit board. See the motherboard layout page for jumper locations.

**Note:** On a two-pin jumper, "Closed" means the jumper is on both pins and "Open" indicates the jumper is either on only one pin or has been completely removed.



### CMOS Clear

JBT1 is used to clear CMOS, which will also clear any passwords. Instead of pins, this jumper consists of contact pads to prevent accidentally clearing the contents of CMOS.

#### To Clear CMOS

1. First power down the system and unplug the power cord(s).
2. Remove the cover of the chassis to access the motherboard.
3. Remove the onboard battery from the motherboard.
4. Short the CMOS pads with a metal object such as a small screwdriver for at least four seconds.
5. Remove the screwdriver (or shorting device).
6. Replace the cover, reconnect the power cord(s) and power on the system.

**Notes:** Clearing CMOS will also clear all passwords.

Do not use the PW\_ON connector to clear CMOS.



### VGA Enable/Disable

JPG1 allows you to enable or disable the VGA port using the onboard graphics controller. The default setting is Enabled.

VGA Enable/Disable Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Enabled
Pins 2-3	Disabled

### 10Gb LAN Enable/Disable

JPTG1 allows you to enable or disable the 10Gb LAN. The default setting is Enabled.

10Gb LAN Enable/Disable Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Enabled
Pins 2-3	Disabled

### Watch Dog

JWD1 controls the Watch Dog function. Watch Dog is a monitor that can reboot the system when a software application hangs. Jumping pins 1-2 will cause Watch Dog to reset the system if an application hangs. Jumping pins 2-3 will generate a non-maskable interrupt signal for the application that hangs. Watch Dog must also be enabled in BIOS.

The default setting is Reset.

**Note:** When Watch Dog is enabled, the user needs to write their own application software to disable it.

Watch Dog Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Reset
Pins 2-3	NMI
Open	Disabled

### ME Manufacturing Mode

Close JPME2 to bypass SPI flash security and force the system to use the Manufacturing Mode, which will allow you to flash the system firmware from a host server to modify system settings.

Manufacturing Mode Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Normal (Default)
Pins 2-3	Manufacturing Mode



## 3.5 LED Indicators

### LAN LEDs

The Ethernet ports each have two LEDs. One LED indicates activity when flashing, while the other LED may be green, amber or off to indicate the speed of the connection.

LAN LED (Connection Speed Indicator)	
LED Color	Definition
Off	10 Mb/s; off
Green	10 Gb/s
Amber	1 Gb/s

### IPMI-Dedicated LAN LEDs

A dedicated IPMI LAN port is also included on the motherboard. The amber LED on the right of the IPMI LAN port indicates activity, while the green LED on the left indicates the speed of the connection.

IPMI LAN LED	
Color	Definition
Off	No Connection
Green	100 Mb/s

### Unit ID LED

A rear unit identifier (UID) indicator at LE1 is located near the UID switch on the I/O back panel. It provides easy identification of a unit that may need service.

### Onboard Power LED

LEDPWR is an Onboard Power LED. When this LED is lit, it means power is present on the motherboard. In suspend mode this LED will blink on and off. Be sure to turn off the system and unplug the power cord(s) before removing or installing components

Onboard Power LED Indicator	
LED Color	Definition
Off	System Off (power cable not connected)
Green	System On

### **BMC Heartbeat LED**

LED M1 is the BMC heartbeat LED. When the LED is blinking green, BMC is functioning normally.

### **M.2 LED**

The M.2 LED is located at LE3. When LE3 is blinking, M.2 functions normally.

## Chapter 4

### Software

After the hardware has been installed, you can install the Operating System (OS), configure RAID settings and install the drivers.

#### 4.1 Microsoft Windows OS Installation

If you will be using RAID, you must configure RAID settings before installing the Windows OS and the RAID driver. Refer to the RAID Configuration User Guides posted on our website at [www.supernmicro.com/support/manuals](http://www.supernmicro.com/support/manuals).

##### *Installing the OS*

1. Create a method to access the MS Windows installation ISO file. That might be a DVD, perhaps using an external USB/SATA DVD drive, or a USB flash drive, or the IPMI KVM console.
2. Retrieve the proper RST/RSTe driver. Go to the Supermicro web page for your motherboard and click on "Download the Latest Drivers and Utilities", select the proper driver, and copy it to a USB flash drive.
3. Boot from a bootable device with Windows OS installation. You can see a bootable device list by pressing **F11** during the system startup.

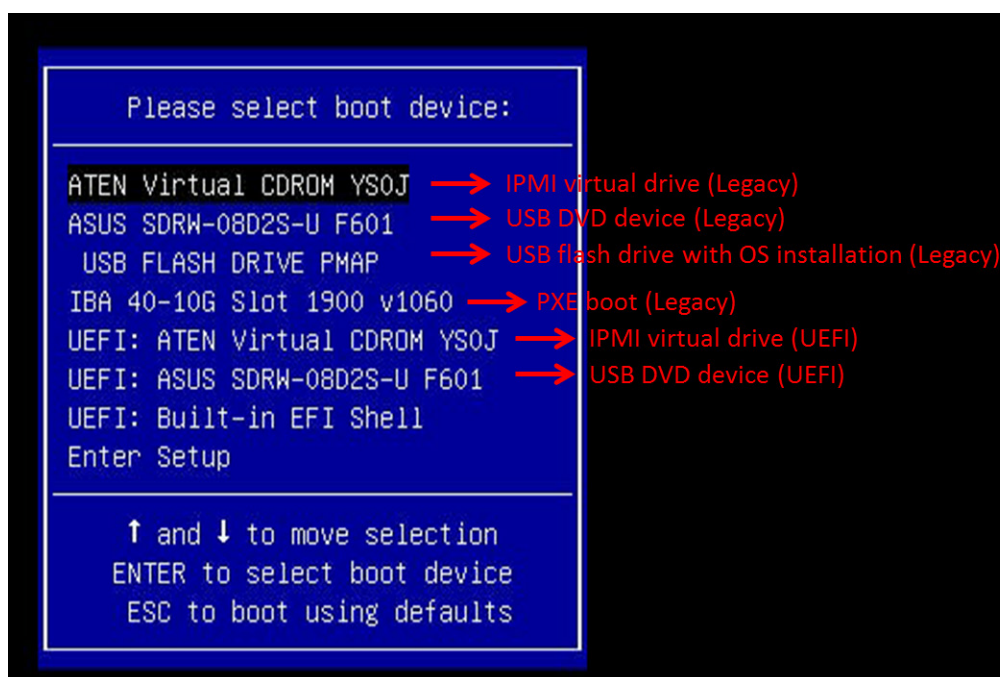
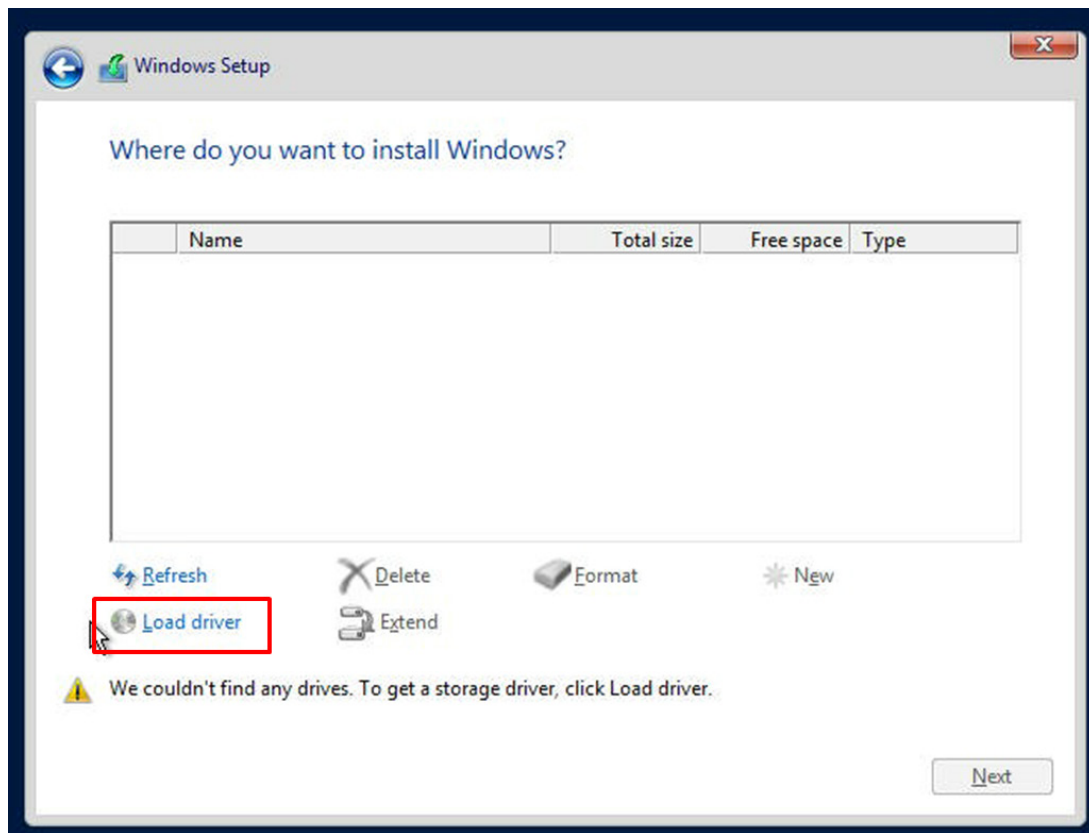


Figure 4-1. Select Boot Device

4. During Windows Setup, continue to the dialog where you select the drives on which to install Windows. If the disk you want to use is not listed, click on “Load driver” link at the bottom left corner.



**Figure 4-2. Load Driver Link**

To load the driver, browse the USB flash drive for the proper driver files.

- For RAID, choose the SATA/sSATA RAID driver indicated then choose the storage drive on which you want to install it.
  - For non-RAID, choose the SATA/sSATA AHCI driver indicated then choose the storage drive on which you want to install it.
5. Once all devices are specified, continue with the installation.
  6. After the Windows OS installation has completed, the system will automatically reboot multiple times.

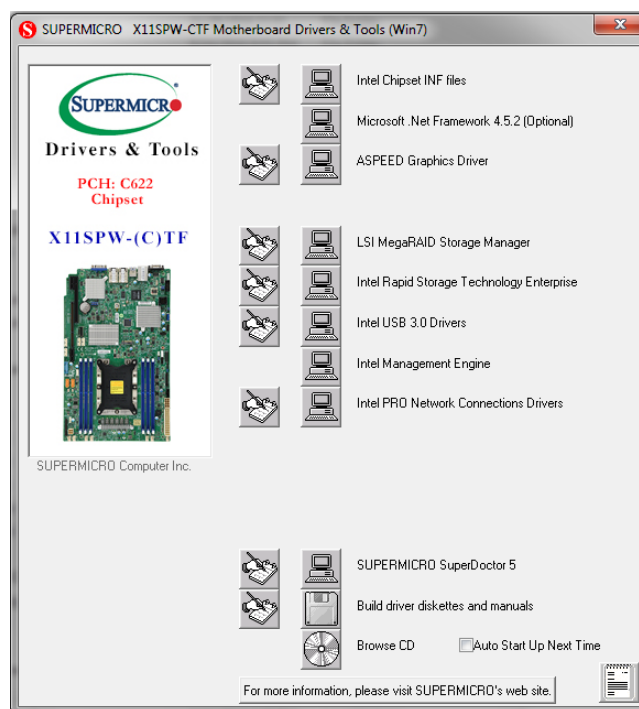
## 4.2 Driver Installation

The Supermicro website contains drivers and utilities for your system at <https://www.supermicro.com/wdl/driver>. Some of these must be installed, such as the chipset driver.

After accessing the website, go into the CDR\_Images (in the parent directory of the above link) and locate the ISO file for your motherboard. Download this file to a USB flash drive or a DVD. (You may also use a utility to extract the ISO file if preferred.)

Another option is to go to the Supermicro website at <http://www.supermicro.com/products/>. Find the product page for your motherboard, and "Download the Latest Drivers and Utilities".

Insert the flash drive or disk and the screenshot shown below should appear.



**Figure 4-3. Driver & Tool Installation Screen**

**Note:** Click the icons showing a hand writing on paper to view the readme files for each item. Click the computer icons to the right of these items to install each item (from top to the bottom) one at a time. **After installing each item, you must re-boot the system before moving on to the next item on the list.** The bottom icon with a CD on it allows you to view the entire contents.

## 4.3 SuperDoctor® 5

The Supermicro SuperDoctor 5 is a program that functions in a command-line or web-based interface for Windows and Linux operating systems. The program monitors such system health information as CPU temperature, system voltages, system power consumption, fan speed, and provides alerts via email or Simple Network Management Protocol (SNMP).

SuperDoctor 5 comes in local and remote management versions and can be used with Nagios to maximize your system monitoring needs. With SuperDoctor 5 Management Server (SSM Server), you can remotely control power on/off and reset chassis intrusion for multiple systems with SuperDoctor 5 or IPMI. SuperDoctor 5 Management Server monitors HTTP, FTP, and SMTP services to optimize the efficiency of your operation.

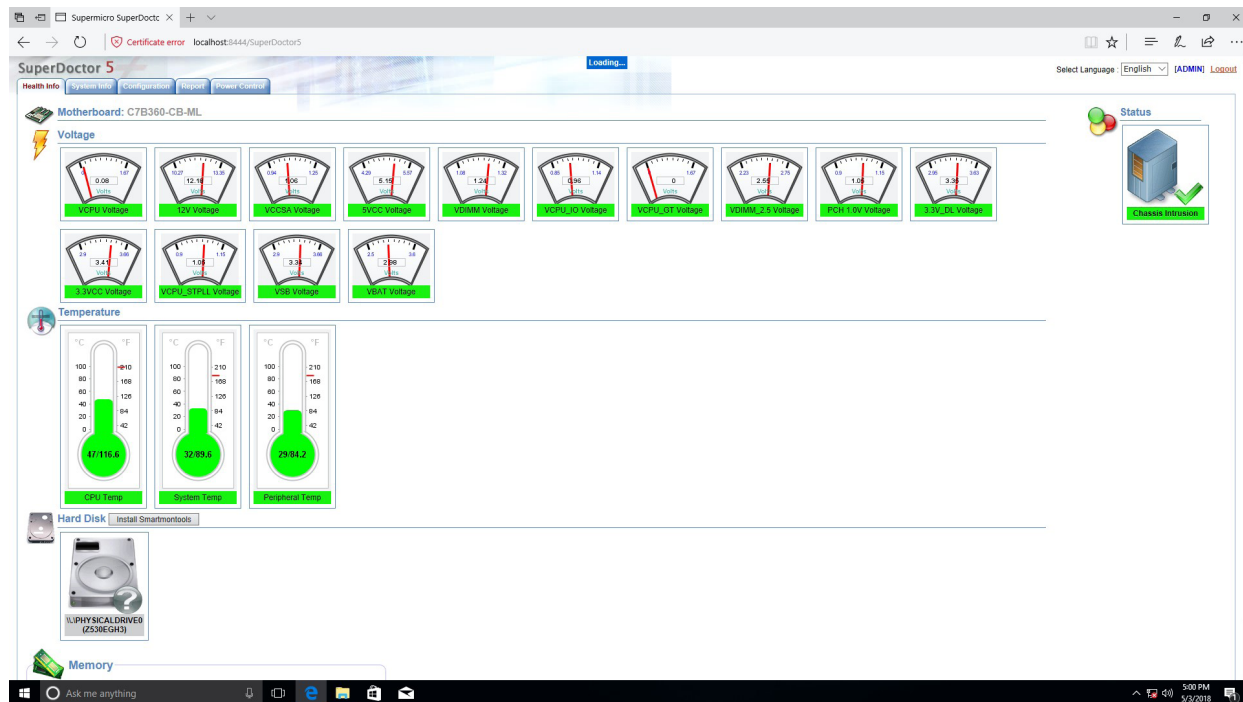


Figure 4-4. SuperDoctor 5 Interface Display Screen (Health Information)

## 4.4 BMC

The motherboard provides remote access, monitoring and management through the baseboard management controller (BMC) and other management controllers distributed among different system modules. There are several BIOS settings that are related to BMC. For general documentation and information on BMC, visit our website at:

[www.supermicro.com/en/solutions/management-software/bmc-resources](http://www.supermicro.com/en/solutions/management-software/bmc-resources)

### BMC ADMIN User Password

For security, each system is assigned a unique default BMC password for the ADMIN user. This can be found on a sticker on the chassis and a sticker on the motherboard. The sticker also displays the BMC MAC address.



**Figure 4-5. BMC Password Label**

See Chapter 1 for the locations of the labels.

## Chapter 5

# UEFI BIOS

### 5.1 Introduction

This chapter describes the AMI UEFI BIOS setup utility for the X11SPW-TF-P and provides the instructions on navigating the setup screens. The BIOS is stored in a Flash EEPROM and can be updated.

**Note:** Due to periodic changes to the BIOS, some settings may have been added or deleted since this manual was published.

#### Starting BIOS Setup Utility

To enter the BIOS setup utility screens, press the <Delete> key while the system is booting up. (There are a few cases when other keys are used, such as <F1>, <F2>, etc.)

The BIOS screens have three main frames. The large left frame displays options can be configured by the user. These are blue. When an option is selected, it is highlighted in white. Settings printed in **Bold** are the default values.

In the left frame, a " ►" indicates a submenu. Highlighting such an item and pressing the <Enter> key opens the list of settings in that submenu.

The upper right frame displays helpful information for the user. The AMI BIOS has default informational messages built in. The manufacturer retains the option to include, omit, or change any of these informational messages.

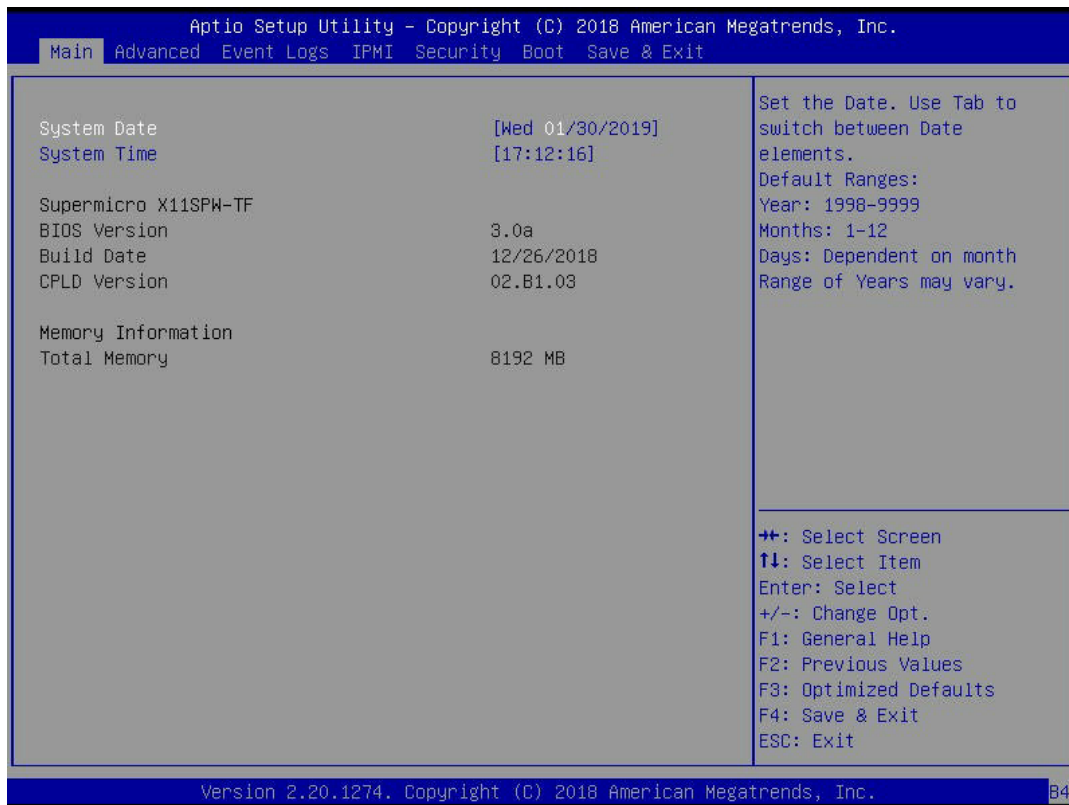
The lower right frame lists navigational methods. The AMI BIOS setup utility uses a key-based navigation system called *hot keys*. Most of these hot keys can be used at any time during setup navigation. These keys include <F3>, <F4>, <Enter>, <ESC>, arrow keys, etc.

Some system parameters may be changed.

### 5.2 Main Setup

When running the BIOS setup utility, it starts with the Main screen. You can always return to it by selecting the Main tab on the top of the screen.





The Main tab page allows you to set the date and time, and it displays system information.

### System Date/System Time

Use this option to change the system date and time. Highlight *System Date* or *System Time* using the arrow keys. Enter new values using the keyboard. Press the <Tab> key or the arrow keys to move between fields. The date must be entered in MM/DD/YYYY format. The time is entered in HH:MM:SS format.

**Note:** The time is in the 24-hour format. For example, 5:30 P.M. appears as 17:30:00. The date's default value is 01/01/2016 after RTC reset.

### Supermicro X11SPW-TF-P (Motherboard model)

#### BIOS Version

#### Build Date (of the BIOS)

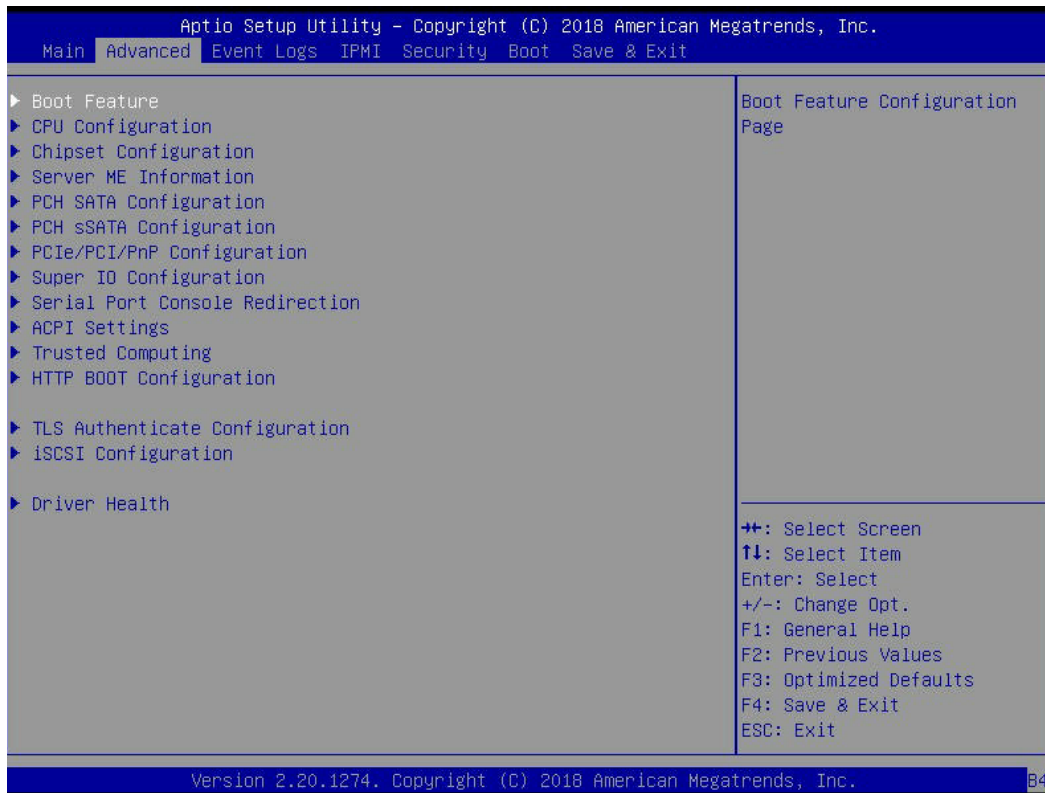
**CPLD (Complex Programmable Logic Device) Version:** This item displays the CPLD version used in the system.

#### Memory Information

#### Total Memory (for the system)

## 5.3 Advanced Setup Configurations

Use the arrow keys to select the Advanced tab and press <Enter> to access the submenu items.



**Caution:** Take caution when changing the Advanced settings. An incorrect value, a very high DRAM frequency, or an incorrect DRAM timing setting may make the system unstable. If this occurs, revert to the manufacture default settings.

### ► Boot Feature

#### Quiet Boot

Use this feature to select the screen display between the POST messages and the OEM logo upon bootup. Select Disabled to display the POST messages. Select Enabled to display the OEM logo instead of the normal POST messages. The options are Disabled and **Enabled**.

#### Option ROM Messages

Use this feature to set the display mode for the Option ROM. Select Keep Current to display the current AddOn ROM setting. Select Force BIOS to use the Option ROM display set by the system BIOS. The options are **Force BIOS** and Keep Current.

#### Bootup NumLock State

Use this feature to set the Power-on state for the <Numlock> key. The options are **On** and Off.

**Wait For "F1" If Error**

Use this feature to force the system to wait until the "F1" key is pressed if an error occurs. The options are Disabled and **Enabled**.

**INT19 (Interrupt 19) Trap Response**

Interrupt 19 is the software interrupt that handles the disk function. When this feature is set to Immediate, the ROM BIOS of the host adaptors will "capture" Interrupt 19 at bootup immediately and allow the drives that are attached to these host adaptors to function as bootable disks. If this feature is set to Postponed, the ROM BIOS of the host adaptors will not capture Interrupt 19 immediately and allow the drives attached to these adaptors to function as bootable devices at bootup. The options are **Immediate** and Postponed.

**Re-try Boot**

If this feature is enabled, the BIOS will automatically reboot the system from a specified boot device after its initial boot failure. The options are **Disabled**, Legacy Boot, and EFI Boot.

**Install Windows 7 USB Support**

Enable this feature to use the USB keyboard and mouse during the Windows 7 installation since the native XHCI driver support is unavailable. Use a SATA optical drive as a USB drive, and USB CD/DVD drives are not supported. Disable this feature after the XHCI driver has been installed in Windows. The options are **Disabled** and Enabled.

**Port 61h Bit-4 Emulation**

Select Enabled to enable the emulation of Port 61h bit-4 toggling in SMM (System Management Mode). The options are **Disabled** and Enabled.

**Power Configuration****Watch Dog Function**

If enabled, the Watch Dog Timer will allow the system to reset or generate NMI based on jumper settings when it has expired for more than five minutes. The options are **Disabled** and Enabled.

**Restore on AC Power Loss**

Use this feature to set the power state after a power outage. Select Stay Off for the system power to remain off after a power loss. Select Power On for the system power to be turned on after a power loss. Select Last State to allow the system to resume its last power state before a power loss. The options are Stay Off, Power On, and **Last State**.

**Power Button Function**

This feature controls how the system shuts down when the power button is pressed. Select 4 Seconds Override for the user to power off the system after pressing and holding the power button for 4 seconds or longer. Select Instant Off to instantly power off the system as soon as the user presses the power button. The options are **Instant Off** and 4 Seconds Override.

## ►CPU Configuration

The following CPU information will display:

- Processor BSP Revision
- Processor Socket
- Processor ID
- Processor Frequency
- Processor Max Ratio
- Processor Min Ratio
- Microcode Revision
- L1 Cache RAM
- L2 Cache RAM
- L3 Cache RAM
- Processor 0 Version

### **Hyper-Threading (ALL) (Available when supported by the CPU)**

Select Enable to support Intel Hyper-threading Technology to enhance CPU performance. The options are Disable and **Enable**.

### **Cores Enabled**

Set a numeric value to enable the number of cores. (Please refer to the Intel website for more information.) Enter **0** to enable all cores.

### **Monitor/Mwait**

Select Enabled to enable the Monitor/Mwait instructions. The Monitor instructions monitors a region of memory for writes, and Mwait instructions instruct the CPU to stop until the monitored region begins to write. The options are **Auto**, Disable, and Enable.

### **Execute Disable Bit (Available if supported by the OS & the CPU)**

Select Enable to enable the Execute-Disable Bit, which will allow the processor to designate areas in the system memory where an application code can execute and where it cannot, thus preventing a worm or a virus from flooding illegal codes to overwhelm the processor or damage the system during an attack. The options are Disable and **Enable**. (Refer to the Intel® and Microsoft® websites for more information.)

**Intel Virtualization Technology**

Use this feature to enable the Vanderpool Technology. This technology allows the system to run several operating systems simultaneously. The options are Disable and **Enable**.

**PPIN Control**

Select Unlock/Enable to use the Protected Processor Inventory Number (PPIN) in the system. The options are Unlock/Disable and **Unlock/Enable**.

**Hardware Prefetcher (Available when supported by the CPU)**

If set to Enable, the hardware prefetcher will prefetch streams of data and instructions from the main memory to the L2 cache to improve CPU performance. The options are Disable and **Enable**.

**Adjacent Cache Prefetch (Available when supported by the CPU)**

The CPU prefetches the cache line for 64 bytes if this feature is set to Disable. The CPU prefetches both cache lines for 128 bytes as comprised if this feature is set to **Enable**. The options are Disable and **Enable**.

**DCU Streamer Prefetcher (Available when supported by the CPU)**

Select Enable to enable the DCU (Data Cache Unit) Streamer Prefetcher, which will stream and prefetch data and send it to the Level 1 data cache to improve data processing and system performance. The options are Disable and **Enable**.

**DCU IP Prefetcher (Available when supported by the CPU)**

Select Enable to enable DCU (Data Cache Unit) IP Prefetcher support, which will prefetch IP addresses to improve network connectivity and system performance. The options are **Enable** and Disable.

**LLC Prefetch**

If set to Enable, the hardware prefetcher will prefetch streams of data and instructions from the main memory to the L3 cache to improve CPU performance. The options are **Disable** and Enable.

**Extended APIC**

Select Enable to activate APIC (Advanced Programmable Interrupt Controller) support. The options are **Disable** and Enable.

**AES-NI**

Select Enable to use the Intel Advanced Encryption Standard (AES) New Instructions (NI) to ensure data security. The options are Disable and **Enable**.

## ► Advanced Power Management Configuration

### Power Technology

Select Energy Efficiency to support power-saving mode. Select Custom to customize system power settings. Select Disable to disable power-saving settings. The options are Disable, **Energy Efficient**, and Custom.

*If the feature above is set to Custom, the following features will become available for configuration:*

### Power Performance Tuning

This feature allows the user to select whether the BIOS or Operating System chooses energy performance bias tuning. The options are **OS Controls EPB** or BIOS Controls EPB.

*If Power Technology is set to BIOS Control EFB, the following features will become available for configuration:*

### ENERGY\_PERF\_BIAS CFG mode

This feature allows the user to set Energy Performance bias The options are Maximum Performance, Performance, **Balanced Performance**, Balanced Power, and Power.

## ► CPU P State Control

This feature allows the user to configure the following CPU power settings:

### Speedstep (P-states)

Intel SpeedStep Technology allows the system to automatically adjust processor voltage and core frequency to reduce power consumption and heat dissipation. The options are Disable and **Enable**.

### EIST PSD Funtion

This feature allows the user to choose between Hardware and Software to control the processor's frequency and performance (P-state). In HW\_ALL mode, the processor hardware is responsible for coordinating the P-state, and the OS is responsible for keeping the P-state request up to date on all Logical Processors. In SW\_ALL mode, the OS Power Manager is responsible for coordinating the P-state, and must initiate the transition on all Logical Processors. In SW\_ANY mode, the OS Power Manager is responsible for coordinating the P-state and may initiate the transition on any Logical Processors. The options are **HW\_ALL**, SW\_ALL, and SW\_ANY.

### Turbo Mode

This feature will enable dynamic control of the processor, allowing it to run above stock frequency. The options are Disable and **Enable**.

## ► Hardware PM State Control

### Hardware P-States

This setting allows the user to select between OS and hardware-controlled P-states. Selecting Native Mode allows the OS to choose a P-state. Selecting Out of Band Mode allows the hardware to autonomously choose a P-state without OS guidance. Selecting Native Mode with No Legacy Support functions as Native Mode with no support for older hardware. The options are **Disable**, Native Mode, Out of Band Mode, and Native Mode with No Legacy Support.

## ► CPU C State Control

### Autonomous Core C-State

Enabling this feature allows the hardware to autonomously choose to enter a C-state based on power consumption and clock speed. The options are **Disable** and **Enable**.

### CPU C6 Report

Select Enable to allow the BIOS to report the CPU C6 State (ACPI C3) to the operating system. During the CPU C6 State, the power to all cache is turned off. The options are Disable, Enable, and **Auto**.

### Enhanced Halt State (C1E)

Select Enable to use Enhanced Halt State technology, which will significantly reduce the CPU's power consumption by reducing its clock cycle and voltage during a Halt-state. The options are Disable and **Enable**.

## ► Package C State Control

### Package C State

This feature allows the user to set the limit on the C State package register. The options are C0/C1 State, C2 State, C6 (Non Retention) State, C6 (Retention) State, No Limit, and **Auto**.

## ► CPU T State Control

### Software Controlled T-States

Use this feature to enable Software Controlled T-States. The options are Disable and **Enable**.

## ► Chipset Configuration

**Warning:** Setting the wrong values in the following features may cause the system to malfunction.

### ► North Bridge

This feature allows the user to configure the following North Bridge settings:

#### ► UPI Configuration

The following UPI information will display:

- Number of CPU
- Number of Active UPI Link
- Current UPI Link Speed
- Current UPI Link Frequency
- UPI Global MMIO Low Base / Limit
- UPI Global MMIO High Base / Limit
- UPI Pci-e Configuration Base / Size

#### Degrade Precedence

Use this feature to set degrade precedence when system settings are in conflict. Select Topology Precedence to degrade Features. Select Feature Precedence to degrade Topology. The options are **Topology Precedence** and Feature Precedence.

#### Link L0p Enable

Select Enable for the QPI to enter the L0p state for power saving. The options are Disable, Enable, and **Auto**.

#### Link L1 Enable

Select Enable for the QPI to enter the L1 state for power saving. The options are Disable, Enable, and **Auto**.

#### IO Directory Cache (IODC)

IO Directory Cache is an 8-entry cache that stores the directory state of remote IIO writes and memory lookups, and saves directory updates. Use this feature to lower cache to cache (C2C) transfer latencies. The options are Disable, **Auto**, Enable for Remote Invltom



Hybrid Push, InvltoM AllocFlow, Enable for Remote InvltoM Hybrid AllocNonAlloc, and Enable for Remote InvltoM and Remote WViLF.

### **SNC**

Sub NUMA Clustering (SNC) is a feature that breaks up the Last Level Cache (LLC) into clusters based on address range. Each cluster is connected to a subset of the memory controller. Enabling SNC improves average latency and reduces memory access congestion to achieve higher performance. Select Auto for 1-cluster or 2-clusters depending on IMC interleave. Select Enable for Full SNC (2-clusters and 1-way IMC interleave). The options are **Disable**, Enable, and Auto.

### **XPT Prefetch**

XPT Prefetch speculatively makes a copy to the memory controller of a reader request being sent to the LLC. IF the read request maps to the local memory address and the recent memory reads are likely to miss the LLC, a speculative read is sent to the local memory controller. The options are **Disable** and Enable.

### **KTI Prefetch**

XPT Prefetch enables memory read to start early on a DDR bus, where the KTI Rx path will directly create a Memory Speculative Read command to the memory controller. The options are Disable and **Enable**.

### **Local/Remote Threshold**

This feature allows the user to set the threshold for the Interrupt Request (IRQ) signal, which handles hardware interruptions. The options are Disable, **Auto**, Low, Medium, and High.

### **Stale AtoS**

This feature optimizes A to S directory. When all snoop responses found in directory A are found to be Rspl, then all data is moved to directory S and is returned in S-state. The options are Disable, Enable, and **Auto**.

### **LLC Dead Line Alloc**

Select Enable to optimally fill dead lines in LLC. Select Disable to never fill dead lines in LLC. The options are Disable, **Enable**, and Auto.

### **Isoc Mode**

Isochronous (Isoc) mode allows time-sensitive processes to be given priority. The options are Disable, Enable, and **Auto**.

## **► Memory Configuration**

**Enforce POR**

Select POR (Plan of Record) to enforce POR restrictions on DDR4 frequency and voltage programming. The options are **POR** and Disable.

**PPR Type**

Use this feature to set the Post Package Repair type. The options are **Auto**, Hard PPR, Soft PPR, and PPR Disabled.

**Memory Frequency**

Use this feature to set the maximum memory frequency for onboard memory modules. The options are **Auto**, 1866, 2000, 2133, 2400, 2666, and 2933.

**Data Scrambling for DDR4**

Use this feature to enable or disable data scrambling for DDR4 memory. The options are **Auto**, Disable, and Enable.

**tCCD\_L Relaxation**

Select Enable to get TCDD settings from SPD (Serial Presence Detect) and implement into memory RC code to improve system reliability. Select Disable for TCCD to follow Intel POR. The options are Disable and **Auto**.

**2X REFRESH**

Use this feature to select the memory controller refresh rate to 2x refresh mode. The options are **Auto** and Enable.

**Page Policy**

Use this feature to set the page policy for onboard memory support. The options are Closed, Adaptive, and **Auto**.

**IMC Interleaving**

Use this feature to configure interleaving settings for the IMC (Integrated Memory Controller), which will improve memory performance. The options are 1-way Interleave, 2way Interleave, and **Auto**.

**► Memory Topology**

This feature displays DIMM population information.

**► Memory RAS Configuration**

**Static Virtual Lockstep Mode**

Select Enable to run the system's memory channels in lockstep mode to minimize memory access latency. The options are **Disable** and Enable.

**Mirror Mode**

This feature allows memory to be mirrored between two channels, providing 100% redundancy. The options are **Disable**, Mirror Mode 1LM, and Mirror Mode 2LM.

**Memory Rank Sparing**

Select Enable to enable memory-sparing support for memory ranks to improve memory performance. The options are **Disable** and Enable.

**Correctable Error Threshold**

Use this feature to specify the threshold value for correctable memory-error logging, which sets a limit on the maximum number of events that can be logged in the memory error log at a given time. The default setting is **100**.

**Intel Run Sure**

Use this feature to enable Intel Run Sure technology. The options are **Disable** and Enable.

**SDDC Plus One**

Single device data correction +1 (SDDC Plus One) organizes data in a single bundle (x4/x8 DRAM). If any or all the bits become corrupted, corrections occur. The x4 condition is corrected on all cases. The x8 condition is corrected only if the system is in Lockstep Mode. The options are **Disable** and Enable.

**ADDDC Sparing**

Adaptive Double Device Data Correction (ADDDC) Sparing detects when the predetermined threshold for correctable errors is reached, copying the contents of the failing DIMM to spare memory. The failing DIMM or memory rank will then be disabled. The options are Disable and **Enable**.

**Patrol Scrub**

Patrol Scrubbing is a process that allows the CPU to correct correctable memory errors detected on a memory module and send the correction to the requestor (the original source). When this feature is set to Enable, the IO hub will read and write back one cache line every 16K cycles, if there is no delay caused by internal processing. By using this method, roughly 64 GB of memory behind the IO hub will be scrubbed every day. The options are Disable and **Enable**.

### Patrol Scrub Interval

This feature allows you to decide how many hours the system should wait before the next complete patrol scrub is performed. Use the keyboard to enter a value from 0-24. The default setting is **24**.

## ► IIO Configuration

### EV DFX Features

When this feature is set to Enable, the EV\_DFX Lock Bits that are located on a processor will always remain clear during electric tuning. The options are **Disable** and **Enable**.

## ► CPU Configuration

### IOU0 (IIO PCIe Br1)

This feature configures the PCI-E port Bifurcation setting for a PCI-E port specified by the user. The options are x4x4x4x4, x4x4x8, x8x4x4, x8x8, x16, and **Auto**.

### IOU1 (IIO PCIe Br2)

This feature configures the PCI-E port Bifurcation setting for a PCI-E port specified by the user. The options are x4x4x4x4, x4x4x8, x8x4x4, x8x8, x16, and **Auto**.

### IOU2 (IIO PCIe Br3)

This feature configures the PCI-E port Bifurcation setting for a PCI-E port specified by the user. The options are x4x4x4x4, x4x4x8, x8x4x4, x8x8, x16, and **Auto**.

## ► IOAT Configuration

### Disable TPH

Transparent Huge Pages (TPH) is a Linux memory management system that enables communication in larger blocks (pages). Enabling this feature will increase performance. The options are **No** and **Yes**.

### Prioritize TPH

Use this feature to enable Prioritize TPH support. The options are **Enable** and **Disable**.

### Relaxed Ordering

Select **Enable** to enable Relaxed Ordering support, which will allow certain transactions to violate the strict-ordering rules of PCI bus for a transaction to be completed prior to other transactions that have already been enqueued. The options are **Disable** and **Enable**.

## ► Intel® VT for Directed I/O (VT-d)

### Intel® VT for Directed I/O (VT-d)

Select **Enable** to use Intel Virtualization Technology for Direct I/O VT-d support by reporting the I/O device assignments to the VMM (Virtual Machine Monitor) through the DMAR ACPI tables. This feature offers fully-protected I/O resource sharing across Intel platforms, providing greater reliability, security and availability in networking and data-sharing. The options are **Disable** and **Enable**.

### ACS Control

Select **Enable** for Access Control Services (ACS) extended capability support to enhance system performance. The options are **Enable** and **Disable**.

### Interrupt Remapping

Use this feature to enable Interrupt Remapping support, which detects and controls external interrupt requests. The options are **Enable** and **Disable**.

### PassThrough DMA

Use this feature to allow devices such as network cards to access the system memory without using a processor. Select **Enable** to use the Non-Isoch VT\_D Engine Pass Through Direct Memory Access (DMA) support. The options are **Enable** and **Disable**.

### ATS

Use this feature to enable Non-Isoch VT-d Engine Address Translation Services (ATS) support. ATS translates virtual addresses to physical addresses. The options are **Enable** and **Disable**.

### Posted Interrupt

Use this feature to enable VT\_D Posted Interrupt. The options are **Enable** and **Disable**.

### Coherency Support (Non-Isoch)

Use this feature to maintain setting coherency between processors or other devices. Select **Enable** for the Non-Isoch VT-d engine to pass through DMA to enhance system performance. The options are **Enable** and **Disable**.

## ► Intel® VMD Technology

**Note:** After you've enabled VMD on a PCI-E slot of your choice, this PCI-E slot will be dedicated for NVMe storage devices use only, and it will no longer support PCI-E devices of other functionalities. To re-activate this slot for PCI-E use, please disable VMD.

## ► Intel® VMD for Volume Management Device on CPU

### VMD Config for PStack0~PStack2

#### Intel® VMD for Volume Management Device

Select Enable to use the Intel Volume Management Device Technology for this stack. The options are **Disable** and Enable.

*\*If the feature above is set to Enable, the following feature will be displayed:*

#### Hot Plug Capable (Available when the device is detected by the system)

Use this feature to enable hot plug support for PCIe root ports 1A~1D/2A~2D/3A~3D. The options are **Disable** and Enable.

#### PCI-E Completion Timeout Disable

Use this feature to enable PCI-E Completion Timeout support for electric tuning. The options are Yes, **No**, and Per-Port.

## ► South Bridge

This feature allows the user to configure the following South Bridge settings:

- USB Module Version
- USB Devices

#### Legacy USB Support

This feature enables support for USB 2.0 and older. The options are **Enabled** and Disabled, and Auto.

#### XHCI Hand-off

When this feature disabled, the motherboard will not support USB 3.0. Options are **Enabled** and Disabled.

#### Port 60/64 Emulation

This feature allows legacy I/O support for USB devices like mice and keyboards. The options are **Enabled** and Disabled.

#### PCIe PLL SSC

Use this feature to enable PCIe PLL spread spectrum clocking (SSC). The options are **Disable** and Enable.

## ► Server ME Configuration

The following General ME Configuration will display:

- Oper. Firmware Version
- Backup Firmware Version
- Recovery Firmware Version
- ME Firmware Status #1
- ME Firmware Status #2
- Current State
- Error Code

## ►PCH SATA Configuration

When this submenu is selected, the AMI BIOS automatically detects the presence of the SATA devices that are supported by the Intel PCH chip and displays the following features:

### **SATA Controller**

This feature enables or disables the onboard SATA controller supported by the Intel PCH chip. The options are Disable and **Enable**.

### **Configure SATA as**

Select AHCI to configure a SATA drive specified by the user as an AHCI drive. Select RAID to configure a SATA drive specified by the user as a RAID drive. The options are **AHCI** and RAID.

### **SATA HDD Unlock**

This feature allows the user to remove any password-protected SATA disk drives. The options are **Enable** and Disable.

### **Aggressive Link Power Management**

When this feature is set to Enable, the SATA AHCI controller manages the power usage of the SATA link. The controller will put the link in a low power mode during extended periods of I/O inactivity, and will return the link to an active state when I/O activity resumes. The options are **Disable** and Enable.

***\*If the feature "Configure SATA as" above is set to RAID, the following features will be displayed:***

### **SATA RSTe Boot Info**

Select Enable to provide full int13h support for the devices attached to SATA controller. The options are Disable and **Enable**.

**SATA RAID Option ROM/UEFI Driver**

Select UEFI to load the EFI driver for system boot. Select Legacy to load a legacy driver for system boot. The options are Disable, EFI, and **Legacy**.

**SATA Port 0 ~ Port 7**

This item displays the information detected on the installed SATA drive on the particular SATA port.

- Model number of drive and capacity
- Software Preserve Support

**Port 0 ~ Port 7 Hot Plug**

Set this feature to Enable for hot plug support, which will allow the user to replace a SATA drive without shutting down the system. The options are Disable and **Enable**.

**Port 0 ~ Port 7 Spin Up Device**

On an edge detect from 0 to 1, set this feature to allow the PCH to initialize the device. The options are **Disable** and Enable.

**Port 0 ~ Port 7 SATA Device Type**

Use this feature to specify if the SATA port specified by the user should be connected to a Solid State drive or a Hard Disk Drive. The options are **Hard Disk Drive** and Solid State Drive.

**►PCH sSATA Configuration**

When this submenu is selected, the AMI BIOS automatically detects the presence of the SATA devices that are supported by the Intel PCH chip and displays the following features:

**sSATA Controller**

This feature enables or disables the onboard sSATA controller supported by the Intel PCH chip. The options are **Enable** and Disable.

**Configure sSATA as**

Select AHCI to configure an sSATA drive specified by the user as an AHCI drive. Select RAID to configure an sSATA drive specified by the user as a RAID drive. The options are **AHCI** and RAID.

**SATA HDD Unlock**

This feature allows the user to remove any password-protected SATA disk drives. The options are Disable and **Enable**.

**Aggressive Link Power Management**

When this feature is set to Enable, the SATA AHCI controller manages the power usage of the SATA link. The controller will put the link in a low power mode during extended periods



of I/O inactivity, and will return the link to an active state when I/O activity resumes. The options are **Disable** and **Enable**.

***\*If the feature above "Configure sSATA as" is set to RAID, the following features will be displayed:***

#### **sSATA RSTe Boot Info**

Select **Enable** to provide full int13h support for the devices attached to SATA controller. The options are **Disable** and **Enable**.

#### **sSATA RAID Option ROM/UEFI Driver**

Select **UEFI** to load the EFI driver for system boot. Select **Legacy** to load a legacy driver for system boot. The options are **Disable**, **EFI**, and **Legacy**.

#### **sSATA Port 0 ~ Port 5**

This item displays the information detected on the installed sSATA drive on the particular sSATA port.

- Model number of drive and capacity
- Software Preserve Support

#### **Port 0 ~ Port 5 Hot Plug**

Set this feature to **Enable** for hot plug support, which will allow the user to replace a SATA drive without shutting down the system. The options are **Disable** and **Enable**.

#### **Port 0 ~ Port 5 Spin Up Device**

On an edge detect from 0 to 1, set this feature to allow the PCH to initialize the device. The options are **Disable** and **Enable**.

#### **Port 0 ~ Port 5 sSATA Device Type**

Use this feature to specify if the SATA port specified by the user should be connected to a Solid State drive or a Hard Disk Drive. The options are **Hard Disk Drive** and **Solid State Drive**.

### **►PCIe/PCI/PnP Configuration**

The following information will display:

- PCI Bus Driver Version
- PCI Devices Common Settings:

#### **Above 4G Decoding (Available if the system supports 64-bit PCI decoding)**

Select **Enabled** to decode a PCI device that supports 64-bit in the space above 4G Address. The options are **Disabled** and **Enabled**.

**SR-IOV Support**

Use this feature to enable or disable Single Root IO Virtualization Support. The options are **Disabled** and Enabled.

**MMIO High Base**

Use this feature to select the base memory size according to memory-address mapping for the IO hub. The options are **56 T**, 40 T, 24 T, 16 T, 4 T, 2 T, and 1 T.

**MMIO High Granularity Size**

Use this feature to select the high memory size according to memory-address mapping for the IO hub. The options are 1 GB, 4 GB, 16 GB, 64 GB, **256 GB**, and 1024 GB.

**Maximum Read Request**

Use this feature to select the Maximum Read Request size of the PCI-Express device, or select Auto to allow the System BIOS to determine the value. The options are **Auto**, 128 Bytes, 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, and 4096 Bytes.

**MMCFG Base**

Use this feature to select the low base address for PCIE adapters to increase base memory. The options are 1G, 1.5G, 1.75G, **2G**, 2.25G, and 3G.

**NVMe Firmware Source**

Use this feature to select the NVMe firmware to support booting. The options are Vendor Defined Firmware and AMI Native Support. The default option, Vendor Defined Firmware, is pre-installed on the drive and may resolve errata or enable innovative functions for the drive. The other option, AMI Native Support, is offered by the BIOS with a generic method. The options are **Vendor Defined Firmware** and AMI Native Support.

**VGA Priority**

Use this feature to select VGA priority when multiple VGA devices are detected. Select Onboard to give priority to your onboard video device. Select Offboard to give priority to your graphics card. The options are **Onboard** and Offboard.

**M.2 PCI-E 3.0 x4 OPROM**

Use this feature to select which firmware type to be loaded for the add-on card in this slot. The options are Disabled, **Legacy**, and EFI.

**Onboard SAS Option ROM**

Select Enabled to enable SAS Option ROM support to boot the computer using a SAS device specified by the user. The options are Disabled, **Legacy**, and EFI.

**Bus Master Enable**

This feature enables a device connected to the bus to initiate Direct Memory Access (DMA) transactions. When Disabled is selected, the PCI Bus Driver disables Bus Master Attribute for Pre-Boot DMA Protection. When Enabled is selected, the PCI Bus Driver enables BUs

Master Attribute for DMA transactions. Some devices request Bus Master to be enabled for operations. The options are Disabled and **Enabled**.

#### **Onboard LAN Device**

Use this feature to enable or disable Onboard LAN devices. The options are Disabled and **Enabled**.

#### **Onboard LAN1 Option ROM**

Use this feature to select which firmware function to be loaded for LAN Port1 used for system boot. The options are Disabled, **Legacy**, and EFI.

#### **Onboard LAN2 Option ROM**

Use this feature to select which firmware function to be loaded for LAN Port2 used for system boot. The options are **Disabled**, Legacy, and EFI.

#### **Onboard Video Option ROM**

Use this feature to select the Onboard Video Option ROM type. The options are Disabled, **Legacy**, and EFI.

### **► Network Stack Configuration**

#### **Network Stack**

Select Enabled to enable PXE (Preboot Execution Environment) or UEFI (Unified Extensible Firmware Interface) for network stack support. The options are **Enabled** and Disabled.

#### **IPv4 PXE Support**

Select Enabled to enable IPv4 PXE boot support. The options are Disabled and **Enabled**.

#### **IPv4 HTTP Support**

Select Enabled to enable IPv4 HTTP boot support. The options are **Disabled** and Enabled.

#### **IPv6 PXE Support**

Select Enabled to enable IPv6 PXE boot support. The options are Disabled and **Enabled**.

#### **IPv6 HTTP Support**

Select Enabled to enable IPv6 HTTP boot support. The options are **Disabled** and Enabled.

#### **PXE Boot Wait Time**

Use this option to specify the wait time to press the ESC key to abort the PXE boot. Press "+" or "-" on your keyboard to change the value. The default setting is **0**.

#### **Media Detect Count**

Use this option to specify the number of times media will be checked. Press "+" or "-" on your keyboard to change the value. The default setting is **1**.

## ► Super IO Configuration

The following Super IO information will display:

- Super IO Chip AST2500

### ► Serial Port 1 Configuration

This submenu allows the user to configure the settings of Serial Port 1.

#### **Serial Port 1**

Select Enabled to enable the selected onboard serial port. The options are Disabled and Enabled.

#### **Device Settings**

This item displays the status of a serial part specified by the user.

#### **Serial Port 1 Change Settings**

This feature specifies the base I/O port address and the Interrupt Request address of a serial port specified by the user. Select Auto to allow the BIOS to automatically assign the base I/O and IRQ address.

The options for Serial Port 1 are **Auto**, (IO=3F8h; IRQ=4;), (IO=2F8h; IRQ=4), (IO=3E8h; IRQ=4;), and (IO=2E8h; IRQ=4).

### ► Serial Port 2 Configuration

This submenu allows the user the configure settings of Serial Port 2.

#### **Serial Port 2**

Select Enabled to enable the selected onboard serial port. The options are Disabled and Enabled.

#### **Device Settings**

This item displays the status of a serial part specified by the user.

#### **Serial Port 2 Change Settings**

This feature specifies the base I/O port address and the Interrupt Request address of a serial port specified by the user. Select Auto to allow the BIOS to automatically assign the base I/O and IRQ address.

The options for Serial Port 2 are **Auto**, (IO=2F8h; IRQ=3;), (IO=3F8h; IRQ=3), (IO=3E8h; IRQ=3), and (IO=2E8h; IRQ=3).

#### **Serial Port 2 Attribute (Available for Serial Port 2 only)**

Select SOL to use COM Port 2 as a Serial Over LAN (SOL) port for console redirection. The options are **SOL** and COM.

## ► Serial Port Console Redirection

### COM1 Console Redirection

Select Enabled to enable console redirection support for a serial port specified by the user. The options are Enabled and **Disabled**.

***\*If the feature above is set to Enabled, the following features will become available for the user's configuration:***

### ► COM1 Console Redirection Settings

This feature allows the user to specify how the host computer will exchange data with the client computer, which is the remote computer used by the user.

#### COM1 Terminal Type

This feature allows the user to select the target terminal emulation type for Console Redirection. Select VT100 to use the ASCII Character set. Select VT100+ to add color and function key support. Select ANSI to use the Extended ASCII Character Set. Select VT-UTF8 to use UTF8 encoding to map Unicode characters into one or more bytes. The options are VT100, **VT100+**, VT-UTF8, and ANSI.

#### COM1 Bits Per Second

Use this feature to set the transmission speed for a serial port used in Console Redirection. Make sure that the same speed is used in the host computer and the client computer. A lower transmission speed may be required for long and busy lines. The options are 9600, 19200, 38400, 57600 and **115200** (bits per second).

#### COM1 Data Bits

Use this feature to set the data transmission size for Console Redirection. The options are 7 Bits and **8 Bits**.

#### COM1 Parity

A parity bit can be sent along with regular data bits to detect data transmission errors. Select Even if the parity bit is set to 0, and the number of 1's in data bits is even. Select Odd if the parity bit is set to 0, and the number of 1's in data bits is odd. Select None if you do not want to send a parity bit with your data bits in transmission. Select Mark to add a mark as a parity bit to be sent along with the data bits. Select Space to add a Space as a parity bit to be sent with your data bits. The options are **None**, Even, Odd, Mark, and Space.

#### COM1 Stop Bits

A stop bit indicates the end of a serial data packet. Select 1 Stop Bit for standard serial data communication. Select 2 Stop Bits if slower devices are used. The options are **1** and 2.

**COM1 Flow Control**

Use this feature to set the flow control for Console Redirection to prevent data loss caused by buffer overflow. Send a "Stop" signal to stop sending data when the receiving buffer is full. Send a "Start" signal to start sending data when the receiving buffer is empty. The options are **None** and Hardware RTS/CTS.

**COM1 VT-UTF8 Combo Key Support**

Select Enabled to enable VT-UTF8 Combination Key support for ANSI/VT100 terminals. The options are Disabled and **Enabled**.

**COM1 Recorder Mode**

Select Enabled to capture the data displayed on a terminal and send it as text messages to a remote server. The options are **Disabled** and Enabled.

**COM1 Resolution 100x31**

Select Enabled for extended-terminal resolution support. The options are Disabled and **Enabled**.

**COM1 Legacy OS Redirection Resolution**

Use this feature to select the number of rows and columns used in Console Redirection for legacy OS support. The options are 80x24 and **80x25**.

**COM1 Putty KeyPad**

This feature selects the settings for Function Keys and KeyPad used for Putty, which is a terminal emulator designed for the Windows OS. The options are **VT100**, LINUX, XTERMR6, SC0, ESCN, and VT400.

**COM1 Redirection After BIOS POST**

Use this feature to enable or disable legacy console redirection after BIOS POST. When set to Bootloader, legacy console redirection is disabled before booting the OS. When set to Always Enable, legacy console redirection remains enabled when booting the OS. The options are **Always Enable** and Bootloader.

**SOL/COM2 Console Redirection**

Select Enabled to enable console redirection support for a serial port specified by the user. The options are **Enabled** and Disabled.

***\*If the feature above is set to Enabled, the following features will become available for user's configuration:***

**► SOL/COM2 Console Redirection Settings**

Use this feature to specify how the host computer will exchange data with the client computer, which is the remote computer used by the user.

### COM2 Terminal Type

Use this feature to select the target terminal emulation type for Console Redirection. Select VT100 to use the ASCII Character set. Select VT100+ to add color and function key support. Select ANSI to use the Extended ASCII Character Set. Select VT-UTF8 to use UTF8 encoding to map Unicode characters into one or more bytes. The options are ANSI, VT100, **VT100+**, and VT-UTF8.

### COM2 Bits Per Second

Use this feature to set the transmission speed for a serial port used in Console Redirection. Make sure that the same speed is used in the host computer and the client computer. A lower transmission speed may be required for long and busy lines. The options are 9600, 19200, 38400, 57600 and **115200** (bits per second).

### COM2 Data Bits

Use this feature to set the data transmission size for Console Redirection. The options are 7 Bits and **8 Bits**.

### COM2 Parity

A parity bit can be sent along with regular data bits to detect data transmission errors. Select Even if the parity bit is set to 0, and the number of 1's in data bits is even. Select Odd if the parity bit is set to 0, and the number of 1's in data bits is odd. Select None if you do not want to send a parity bit with your data bits in transmission. Select Mark to add a mark as a parity bit to be sent along with the data bits. Select Space to add a Space as a parity bit to be sent with your data bits. The options are **None**, Even, Odd, Mark and Space.

### COM2 Stop Bits

A stop bit indicates the end of a serial data packet. Select 1 Stop Bit for standard serial data communication. Select 2 Stop Bits if slower devices are used. The options are **1** and 2.

### COM2 Flow Control

Use this feature to set the flow control for Console Redirection to prevent data loss caused by buffer overflow. Send a "Stop" signal to stop sending data when the receiving buffer is full. Send a "Start" signal to start sending data when the receiving buffer is empty. The options are **None** and Hardware RTS/CTS.

### COM2 VT-UTF8 Combo Key Support

Select Enabled to enable VT-UTF8 Combination Key support for ANSI/VT100 terminals. The options are Disabled and **Enabled**.

### COM2 Recorder Mode

Select Enabled to capture the data displayed on a terminal and send it as text messages to a remote server. The options are **Disabled** and Enabled.

**COM2 Resolution 100x31**

Select Enabled for extended-terminal resolution support. The options are Disabled and **Enabled**.

**COM2 Legacy OS Redirection Resolution**

Use this feature to select the number of rows and columns used in Console Redirection for legacy OS support. The options are 80x24 and **80x25**.

**COM2 Putty KeyPad**

This feature selects Function Keys and KeyPad settings for Putty, which is a terminal emulator designed for the Windows OS. The options are **VT100**, LINUX, XTERMR6, SCO, ESCN, and VT400.

**COM2 Redirection After BIOS POST**

Use this feature to enable or disable legacy Console Redirection after BIOS POST. When set to Bootloader, legacy Console Redirection is disabled before booting the OS. When set to Always Enable, legacy Console Redirection remains enabled when booting the OS. The options are **Always Enable** and Bootloader.

**Legacy Console Redirection****Legacy Serial Redirection Port**

Use this feature to select a COM port to display redirection of Legacy OS and Legacy OPRM messages. The options are **COM1** and SOL/COM2.

**EMS (Emergency Management Services) Console Redirection**

Select Enabled to use a COM port selected by the user for EMS Console Redirection. The options are Enabled and **Disabled**.

***\*If the feature above is set to Enabled, the following features will become available for user's configuration:***

**►EMS Console Redirection Settings**

This feature allows the user to specify how the host computer will exchange data with the client computer, which is the remote computer used by the user.

**Out-of-Band Mgmt Port**

The feature selects a serial port in a client server to be used by the Microsoft Windows Emergency Management Services (EMS) to communicate with a remote host server. The options are **COM1** and SOL/COM2.

**Terminal Type**

Use this feature to select the target terminal emulation type for Console Redirection. Select VT100 to use the ASCII character set. Select VT100+ to add color and function key support. Select ANSI to use the extended ASCII character set. Select VT-UTF8 to use



UTF8 encoding to map Unicode characters into one or more bytes. The options are VT100, VT100+, **VT-UTF8**, and ANSI.

#### **Bits Per Second**

This feature sets the transmission speed for a serial port used in Console Redirection. Make sure that the same speed is used in the host computer and the client computer. A lower transmission speed may be required for long and busy lines. The options are 9600, 19200, 57600, and **115200** (bits per second).

#### **Flow Control**

Use this feature to set the flow control for Console Redirection to prevent data loss caused by buffer overflow. Send a "Stop" signal to stop sending data when the receiving buffer is full. Send a "Start" signal to start sending data when the receiving buffer is empty. The options are **None**, Hardware RTS/CTS, and Software Xon/Xoff.

#### **EMS Data Bits, Parity, Stop Bits**

### **►ACPI Settings**

#### **WHEA Support**

Select Enabled to support the Windows Hardware Error Architecture (WHEA) platform and provide a common infrastructure for the system to handle hardware errors within the Windows OS environment to reduce system crashes and to enhance system recovery and health monitoring. The options are Disabled and **Enabled**.

#### **High Precision Event Timer**

Select Enabled to activate the High Precision Event Timer (HPET) that produces periodic interrupts at a much higher frequency than a Real-time Clock (RTC) does in synchronizing multimedia streams, providing smooth playback and reducing the dependency on other timestamp calculation devices, such as an x86 RDTSC Instruction embedded in the CPU. The High Performance Event Timer is used to replace the 8254 Programmable Interval Timer. The options are Disabled and **Enabled**.

### **►Trusted Computing**

The X11SPW-CTF/-TF supports TPM 1.2 and 2.0. The following Trusted Platform Module (TPM) information will display if a TPM 2.0 module is detected:

- Vendor Name
- Firmware Version

#### **Security Device Support**

If this feature and the TPM jumper on the motherboard are both set to Enabled, onboard security devices will be enabled for TPM (Trusted Platform Module) support to enhance data

integrity and network security. Please reboot the system for a change on this setting to take effect. The options are Disable and **Enable**.

- Active PCR Bank
- SHA256 PCR Bank

***\*If the feature above is set to Enable, "SHA256 PCR Bank" will become available for configuration:***

#### **SHA256 PCR Bank**

Use this feature to disable or enable the SHA256 Platform Configuration Register (PCR) bank for the installed TPM device. The options are Disabled and **Enabled**.

#### **Pending Operation**

Use this feature to schedule a TPM-related operation to be performed by a security device for system data integrity. Your system will reboot to carry out a pending TPM operation. The options are **None** and TPM Clear.

#### **Platform Hierarchy**

Use this feature to disable or enable platform hierarchy for platform protection. The options are Disabled and **Enabled**.

#### **Storage Hierarchy**

Use this feature to disable or enable storage hierarchy for cryptographic protection. The options are Disabled and **Enabled**.

#### **Endorsement Hierarchy**

Use this feature to disable or enable endorsement hierarchy for privacy control. The options are Disabled and **Enabled**.

#### **PH Randomization**

Use this feature to disable or enable Platform Hierarchy (PH) Randomization. The options are **Disabled** and Enabled.

#### **SMCI BIOS-Based TPM Provision Support**

Use this feature to enable the Supermicro TPM Provision support. The options are **Disabled** and Enabled.

#### **TXT Support**

Intel Trusted Execution Technology (TXT) helps protect against software-based attacks and ensures protection, confidentiality, and integrity of data stored or created on the system. Use this feature to enable or disable TXT Support. The options are **Disabled** and Enabled.

## ► HTTP Boot Configuration

### HTTP BOOT Configuration

#### Http Boot One Time

Use this feature to create the HTTP boot option. The options are **Disabled** and Enable.

#### Input the description

Highlight the feature and press enter to create a description.

#### Boot URI

Highlight the feature and press enter to create a boot URI.

## ► TLS Authentication Configuration

This submenu allows the user to configure Transport Layer Security (TLS) settings.

### ► Server CA Configuration

#### ► Enroll Certification

##### ► Enroll Certification Using File

Use this feature to enroll certification from a file.

#### Certification GUID

Use this feature to enroll to input the certification GUID.

#### ► Commit Changes and Exit

Use this feature to enroll to save all changes and exit TLS settings.

#### ► Discard Changes and Exit

Use this feature to enroll to discard all changes and exit TLS settings.

#### ► Delete Certification

Use this feature to delete certification.

## ► iSCSI Configuration

### iSCSI Initiator Name

This feature allows the user to enter the unique name of the iSCSI Initiator in IQN format. Once the name of the iSCSI Initiator is entered into the system, configure the proper settings for the following items.

▶ **Add an Attempt**

▶ **Delete Attempts**

▶ **Change Attempt Order**

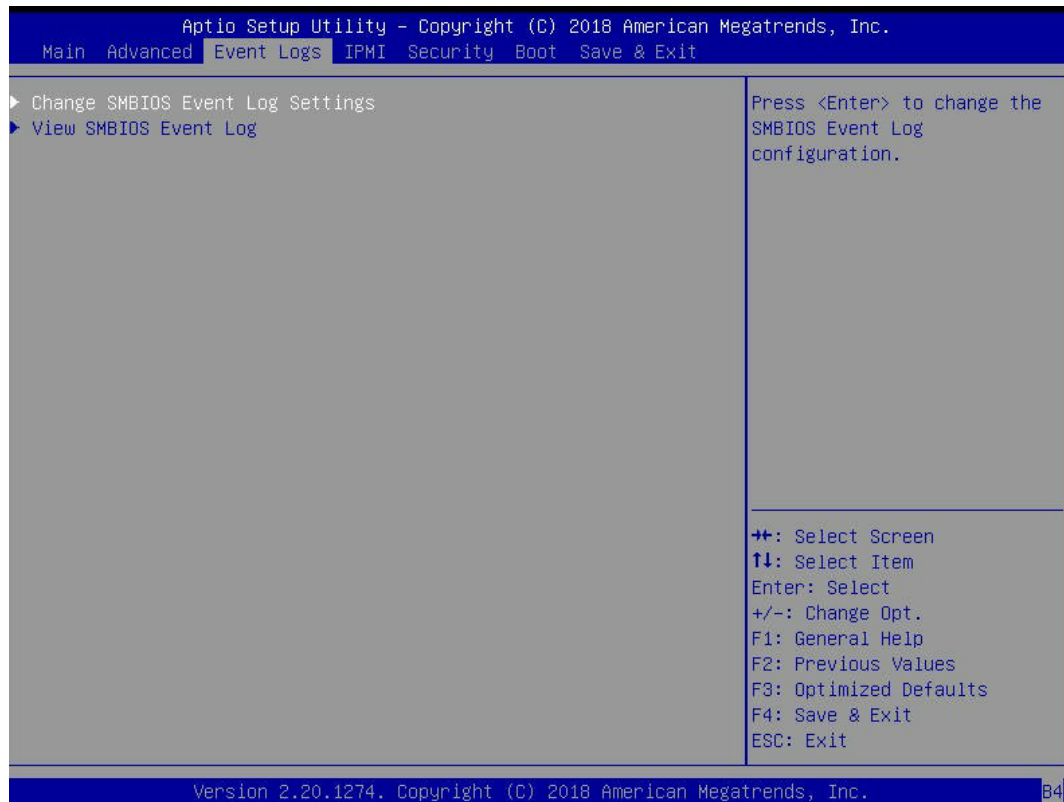
▶ **Driver Health**

**Intel® DCPMM 1.0.0 3880 Driver**

This feature provides health status for the drivers and controllers.

## 5.4 Event Logs

Use this tab page to configure Event Log settings.



### ► Change SMBIOS Event Log Settings

#### Enabling/Disabling Options

##### SMBIOS Event Log

Change this feature to enable or disable all features of the SMBIOS Event Logging during system boot. The options are **Enabled** and Disabled.

#### Erasing Settings

##### Erase Event Log

If No is selected, data stored in the event log will not be erased. Select Yes, Next reset, data in the event log will be erased upon next system reboot. Select Yes, Every reset, data in the event log will be erased upon every system reboot. The options are **No**, Yes, Next reset, and Yes, Every reset.

##### When Log is Full

Select Erase Immediately for all messages to be automatically erased from the event log when the event log memory is full. The options are **Do Nothing** and Erase Immediately.

## **SMBIOS Event Log Standard Settings**

### **Log System Boot Event**

This option toggles the System Boot Event logging to enabled or disabled. The options are **Disabled** and **Enabled**.

### **MECI**

The Multiple Event Count Increment (MECI) counter counts the number of occurrences that a duplicate event must happen before the MECI counter is incremented. This is a numeric value. The default value is **1**.

### **METW**

The Multiple Event Time Window (METW) defines number of minutes must pass between duplicate log events before MECI is incremented. This is in minutes, from 0 to 99. The default value is **60**.

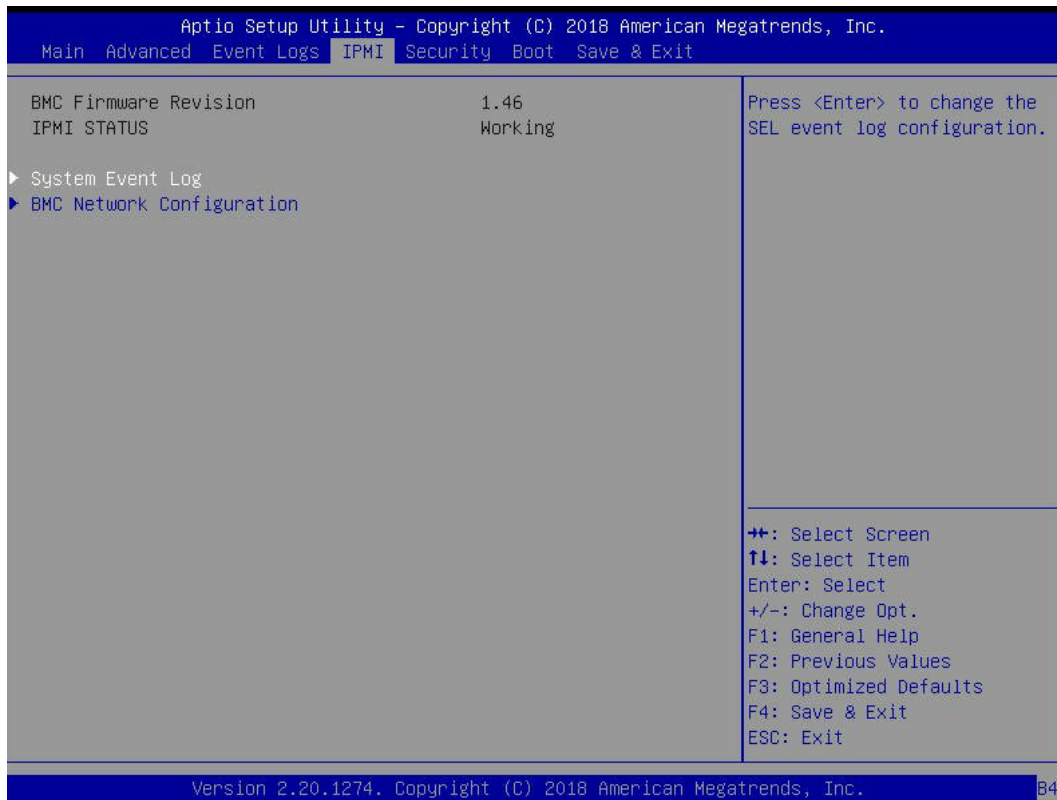
**Note:** After making changes on a setting, be sure to reboot the system for the changes to take effect.

## **►View SMBIOS Event Log**

Select this submenu and press enter to see the contents of the SMBIOS event log. The following categories will be displayed: Date/Time/Error Codes/Severity.

## 5.5 IPMI

Use this tab page to configure Intelligent Platform Management Interface (IPMI) settings.



### BMC Firmware Revision

This item indicates the IPMI firmware revision used in your system.

### IPMI Status (Baseboard Management Controller)

This item indicates the status of the IPMI firmware installed in your system.

### ► System Event Log

#### Enabling/Disabling Options

#### SEL Components

Select Enabled for all system event logging at bootup. The options are **Enabled** and Disabled.

#### Erasing Settings

#### Erase SEL

Select Yes, On next reset to erase all system event logs upon next system reboot. Select Yes, On every reset to erase all system event logs upon each system reboot. Select No to keep all system event logs after each system reboot. The options are **No**, Yes, On next reset, and Yes, On every reset.

### When SEL is Full

This feature allows the user to decide what the BIOS should do when the system event log is full. Select Erase Immediately to erase all events in the log when the system event log is full. The options are **Do Nothing** and Erase Immediately.

**Note:** After making changes on a setting, be sure to reboot the system for the changes to take effect.

## ►BMC Network Configuration

### BMC Network Configuration

#### Configure IPV4 Support

This section displays configuration features for IPV4 support.

#### IPMI LAN Selection

This item displays the IPMI LAN setting. The default setting is **Failover**.

#### IPMI Network Link Status

This item displays the IPMI Network Link status. The default setting is **Shared LAN**.

#### Update IPMI LAN Configuration

Select Yes for the BIOS to implement all IP/MAC address changes at the next system boot. The options are **No** and Yes.

***\*If the feature above is set to Yes, the following features will become available for user's configuration:***

#### Configuration Address Source

This feature allows the user to select the source of the IP address for this computer. If Static is selected, you will need to know the IP address of this computer and enter it to the system manually in the field. If DHCP is selected, the BIOS will search for a DHCP (Dynamic Host Configuration Protocol) server in the network that is attached to and request the next available IP address for this computer. The options are **DHCP** and Static.

#### Station IP Address

This item displays the Station IP address for this computer. This should be in decimal and in dotted quad form (i.e., 192.168.10.253).

#### Subnet Mask

This item displays the sub-network that this computer belongs to. The value of each three-digit number separated by dots should not exceed 255.

#### Station MAC Address

This item displays the Station MAC address for this computer. Mac addresses are 6 two-digit hexadecimal numbers.



### Gateway IP Address

This item displays the Gateway IP address for this computer. This should be in decimal and in dotted quad form (i.e., 172.31.0.1).

### VLAN

This feature displays the virtual LAN settings. The options are **Disable** and Enable.

### Configure IPV6 Support

This section displays configuration features for IPV6 support.

#### IPV6 Address Status

#### IPV6 Support

Use this feature to enable IPV6 support. The options are **Enabled** and Disabled.

#### Configuration Address Source

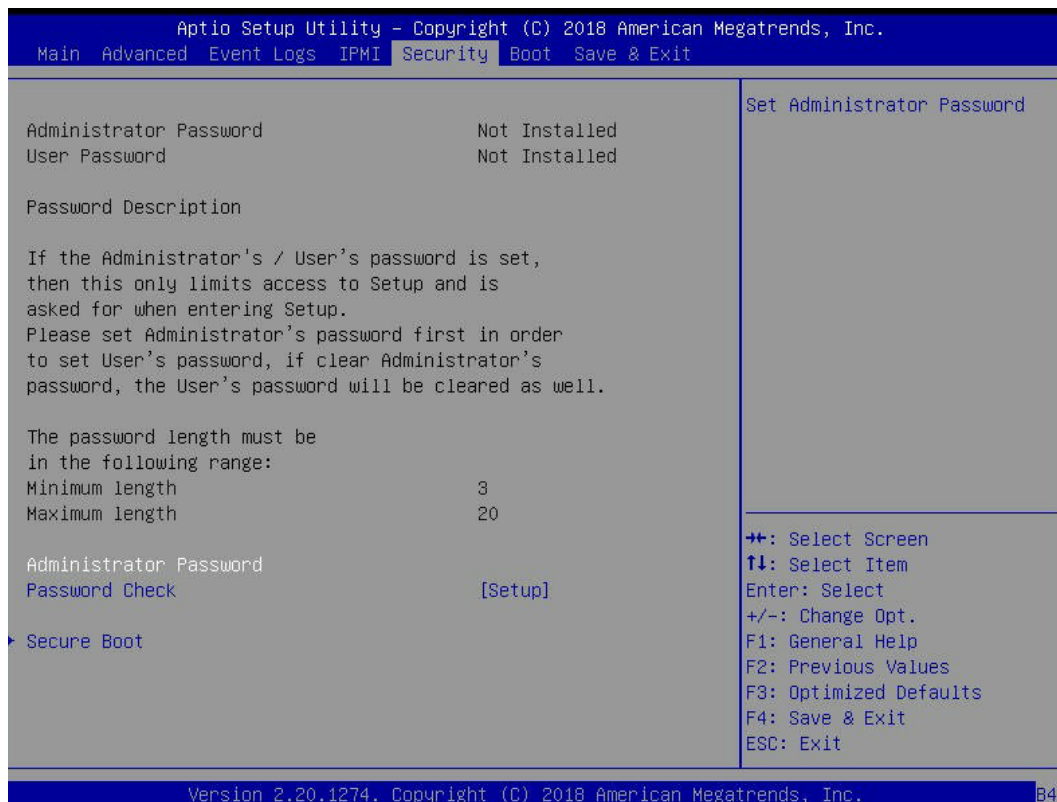
This feature allows the user to select the source of the IP address for this computer. If Static is selected, you will need to know the IP address of this computer and enter it to the system manually in the field. If DHCP is selected, the BIOS will search for a DHCP (Dynamic Host Configuration Protocol) server in the network that is attached to and request the next available IP address for this computer. The options are Static and **DHCP**.

***\*If the feature above is set to Static, the following features will become available for configuration:***

- Station IPV6 Address
- Prefix Length
- IPV6 Router1 IP Address

## 5.6 Security

Use this tab page to configure Security settings.



### Administrator Password

Press Enter to create a new, or change an existing, Administrator password.

### User Password

Press Enter to create a new, or change an existing, User password.

### Password Check

Select Setup for the system to check for a password at Setup. Select Always for the system to check for a password at bootup or upon entering the BIOS Setup utility. The options are **Setup** and Always.

### ► Secure Boot

This section displays the contents of the following secure boot features:

- System Mode
- Vendor Keys
- Secure Boot

### **Secure Boot**

Use this feature to enable secure boot. The options are **Disabled** and Enabled.

### **Secure Boot Mode**

Use this feature to configure Secure Boot variables without authentication. The options are Standard and **Custom**.

### **CSM Support**

Select Enabled to support the EFI Compatibility Support Module (CSM), which provides compatibility support for traditional legacy BIOS for system boot. The options are **Enabled** and Disabled.

### **►Key Management**

This submenu allows the user to configure the following Key Management settings.

#### **Provision Factory Default Keys**

Select Enabled to install the default Secure Boot keys set by the manufacturer. The options are **Disabled** and Enabled.

#### **►Restore Factory Keys**

Select Yes to force system to install factory default keys. The options are **Yes** and No.

#### **►Reset to Setup Mode**

Select Yes to delete all erase all Secure Boot key databases from NVRAM. The options are **Yes** and No.

#### **►Export All Secure Boot Variables**

This feature allows the user to copy all variables onto a file on a separate device.

#### **►Enroll EFI Image**

This feature allows the image to run in Secure Boot Mode. Enroll SHA256 Hash Certificate of the image into the Authorized Signature Database.

### **Device Guard Ready**

#### **►Remove 'UEFI CA' from DB**

Use this feature to remove the Microsoft UEFI CA certificate from the database. The options are Yes and No.

### ► Restore DB defaults

Select Yes to restore the DB defaults.

### Secure Boot variable

### ► Platform Key (PK)

This feature allows the user to configure the settings of the platform keys.

#### Details

Review details on current settings of the platform keys.

#### Export

This feature allows the user to export Platform Keys to an available file system.

#### Update

Select Yes to load the new Platform Keys (PK) from the manufacturer's defaults. Select No to load the Platform Keys from a file. The options are Yes and No.

#### Delete

Select Yes to confirm deletion of the Platform Key from NVRAM.

### ► Key Exchange Key

#### Details

Review details on current settings of the Key Exchange Keys.

#### Export

This feature allows the user to export Key Exchange Keys to an available file system.

#### Update

Select Yes to load the KEK from the manufacturer's defaults. Select No to load the KEK from a file. The options are Yes and No.

#### Append

Select Yes to add the KEK from the manufacturer's defaults list to the existing KEK. Select No to load the KEK from a file. The options are Yes and No.

**Delete**

Select Yes to delete the Key Exchange Keys. Select No to delete only a certificate from the key database. The options are Yes and No.

**► Authorized Signatures****Details**

Review details on current settings of the Authorized Signatures.

**Export**

This feature allows the user to export Authorized Signatures to an available file system.

**Update**

Select Yes to load the factory default DB. Select No to load the DB from a external file. The options are Yes and No.

**Append**

Select Yes to add the database from the manufacturer's defaults to the existing DB. Select No to load the DB from a file. The options are Yes and No.

**Delete**

Select Yes to delete the Authorized Signatures key database. Select No to delete only a certificate from the key database. The options are Yes and No.

**► Forbidden Signatures****Details**

Review details on current settings of the Forbidden Signatures.

**Export**

This feature allows the user to export Forbidden Signatures to an available file system.

**Update**

Select Yes to load the DBX factory default 'dbx.' Select No to load it from an external file. The options are Yes and No.

**Append**

Select Yes to add the DBX from the manufacturer's defaults to the existing DBX. Select No to load the DBX from a file. The options are Yes and No.

### **Delete**

Select Yes to delete the Forbidden Signatures key database. Select No to delete only a certificate from the key database. The options are Yes and No.

## **► Authorized TimeStamps**

### **Details**

Review details on current settings of Authorized Time Stamps.

### **Export**

This feature allows the user to export Authorized TimeStamps to an available file system.

### **Update**

Select Yes to load the DBT from the manufacturer's defaults. Select No to load the DBT from a file. The options are Yes and No.

### **Append**

Select Yes to add the DBT from the manufacturer's defaults list to the existing DBT. Select No to load the DBT from a file. The options are Yes and No.

### **Delete**

Select Yes to delete the Authorized TimeStamps key database. Select No to delete only a certificate from the key database. The options are Yes and No.

## **► OsRecovery Signature**

This item uploads and installs an OsRecovery Signature. You may insert a factory default key or load from a file. The file formats accepted are:

- 1) Public Key Certificate
  - a. EFI Signature List
  - b. EFI CERT X509 (DER Encoded)
  - c. EFI CERT RSA2048 (bin)
  - d. EFI SERT SHA256 (bin)
- 2) EFI Time Based Authenticated Variable

When prompted, select "Yes" to load Factory Defaults or "No" to load from a file.

### **Details**

Review details on current settings of OsRecovery Signatures.

**Export**

This feature allows the user to export OsRecovery Signatures to an available file system.

**Set New**

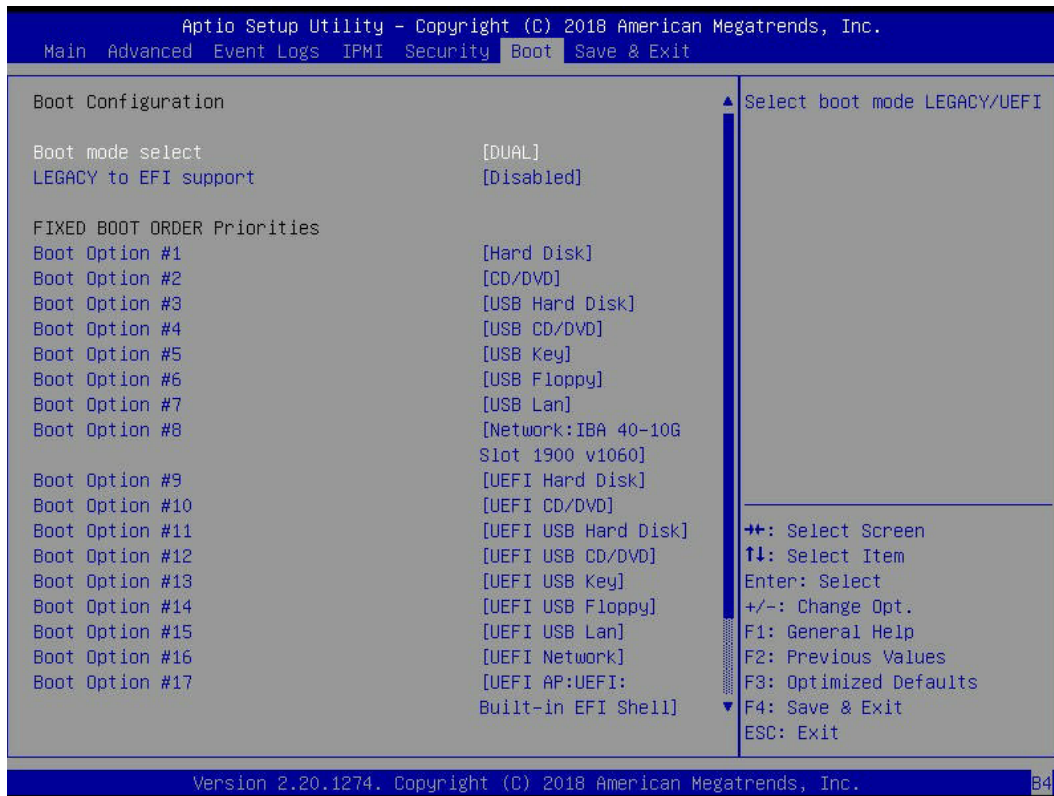
Select Yes to load the DBR from the manufacturer's defaults. Select No to load the DBR from a file. The options are Yes and No.

**Append**

This feature uploads and adds an OsRecovery Signature into the Key Management. You may insert a factory default key or load from a file. When prompted, select "Yes" to load Factory Defaults or "No" to load from a file.

## 5.7 Boot

Use this tab page to configure Boot Settings.



### Boot Mode Select

Use this feature to select the type of device that the system is going to boot from. The options are Legacy, UEFI, and **Dual**.

### Legacy to EFI Support

This feature enables the system to boot to EFI OS if boot fails from Legacy boot order. The options are Enabled or **Disabled**.

### Fixed Boot Order Priorities

This option prioritizes the order of bootable devices that the system boots from. Press <Enter> on each entry from top to bottom to select devices.

***\*If the feature "Boot Mode Select" above is set to Legacy, UEFI, or Dual, the following items will be displayed:***

- Legacy/UEFI/Dual Boot Option #1
- Legacy/UEFI/Dual Boot Option #2
- Legacy/UEFI/Dual Boot Option #3
- Legacy/UEFI/Dual Boot Option #4



- Legacy/UEFI/Dual Boot Option #5
- Legacy/UEFI/Dual Boot Option #6
- Legacy/UEFI/Dual Boot Option #7
- Legacy/UEFI/Dual Boot Option #8
- UEFI/Dual Boot Option #9
- Dual Boot Option #10
- Dual Boot Option #11
- Dual Boot Option #12
- Dual Boot Option #13
- Dual Boot Option #14
- Dual Boot Option #15
- Dual Boot Option#16
- Dual Boot Option #17

### ► Delete Boot Option

This feature allows the user to select a boot device to delete from the boot priority list.

#### **Delete Boot Option**

Use this feature to remove an EFI boot option from the boot priority list.

### ► UEFI Application Boot Priorities

This feature allows the user to specify which UEFI devices are boot devices.

- UEFI Boot Option #1

### ► NETWORK Drive BBS Priorities

This feature sets the system boot order of detected devices.

- Boot Option #1

***\*If any storage media is detected, the following features will become available for configuration:***

## ► Add New Boot Option

This feature allows the user to add a new boot option to the boot priority features for your system.

### **Add Boot Option**

Use this feature to specify the name for the new boot option.

### **Path for Boot Option**

Use this feature to enter the path for the new boot option in the format fsx:\path\filename.efi.

### **Boot Option File Path**

Use this feature to specify the file path for the new boot option.

### **Create**

Use this feature to set the name and the file path of the new boot option.

## ► UEFI USB Key Drive BBS Priorities

This feature sets the system boot order of detected devices.

- Boot Option #1

## ► USB Key Drive BBS Priorities

This feature sets the system boot order of detected devices.

- Boot Option #1

## ► UEFI Hard Disk Drive BBS Priorities

This feature sets the system boot order of detected devices.

- Boot Option #1

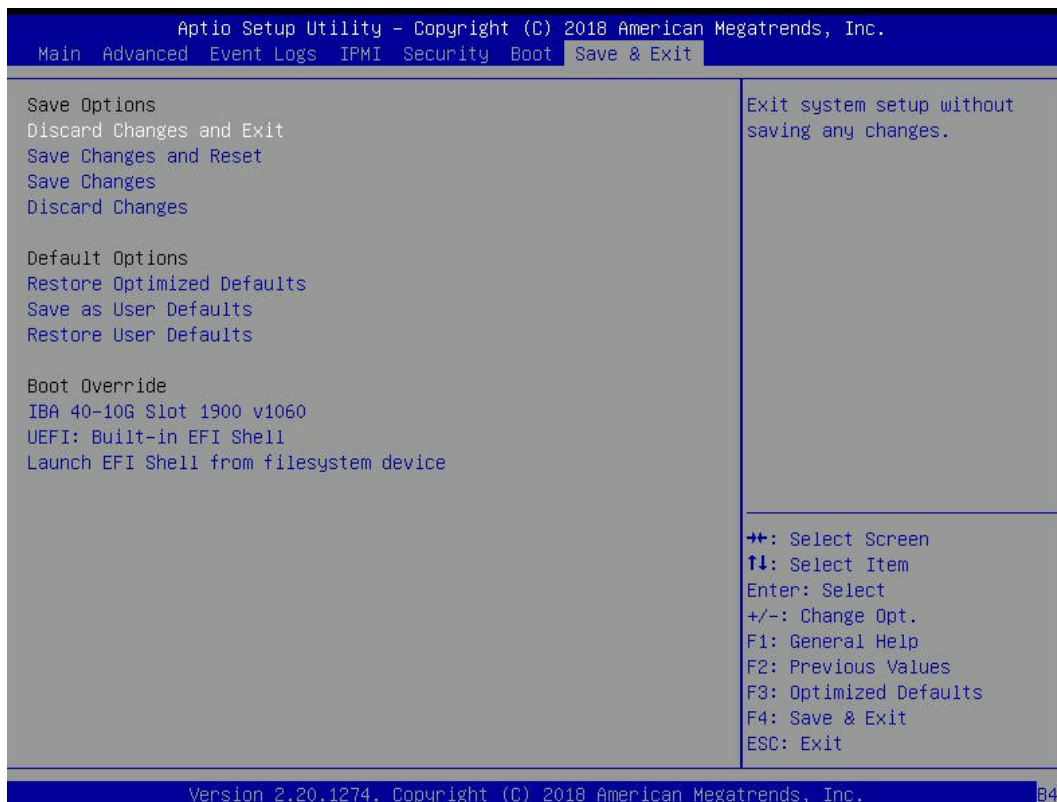
## ► Hard Disk Drive BBS Priorities

This feature sets the system boot order of detected devices.

- Boot Option #1

## 5.8 Save & Exit

Use this tab page to configure Save & Exit settings.



### Save Options

#### Discard Changes and Exit

Select this option to quit the BIOS Setup without making any permanent changes to the system configuration and reboot the computer. Select Discard Changes and Exit from the Save & Exit menu and press <Enter>.

#### Save Changes and Reset

After completing the system configuration changes, select this option to save the changes you have made. This will not reset (reboot) the system.

#### Save Changes

When you have completed the system configuration changes, select this option to leave the BIOS setup utility and reboot the computer, so the new system configuration parameters can take effect. Select Save Changes from the Save & Exit menu and press <Enter>.

#### Discard Changes

Select this option and press <Enter> to discard all the changes and return to the AMI BIOS utility program.

## **Default Options**

### **Restore Optimized Defaults**

To set this feature, select Restore Defaults from the Save & Exit menu and press <Enter>. These are factory settings designed for maximum system stability, but not for maximum performance.

### **Save As User Defaults**

To set this feature, select Save as User Defaults from the Save & Exit menu and press <Enter>. This enables the user to save any changes to the BIOS setup for future use.

### **Restore User Defaults**

To set this feature, select Restore User Defaults from the Save & Exit menu and press <Enter>. Use this feature to retrieve user-defined settings that were saved previously.

### **Boot Override**

Listed in this section are other boot options for the system (i.e., Built-in EFI shell). Select an option and press <Enter>. Your system will boot to the selected boot option.

# Appendix A

## BIOS Error Codes

### A.1 BIOS Error Beep (POST) Codes

During the POST (Power-On Self-Test) routines, which are performed each time the system is powered on, errors may occur.

**Non-fatal errors** are those which, in most cases, allow the system to continue the boot-up process. The error messages normally appear on the screen.

**Fatal errors** are those which will not allow the system to continue the boot-up procedure. If a fatal error occurs, you should consult with your system manufacturer for possible repairs.

These fatal errors are usually communicated through a series of audible beeps. The table below lists some common errors and their corresponding beep codes encountered by users.

BIOS Error Beep (POST) Codes		
Beep Code	Error Message	Description
1 short	Refresh	Circuits have been reset (Ready to power up)
5 short, 1 long	Memory error	No memory detected in system
5 long, 2 short	Display memory read/write error	Video adapter missing or with faulty memory
1 long continuous	System OH	System overheat condition

### A.2 Additional BIOS POST Codes

The AMI BIOS supplies additional checkpoint codes, which are documented online at <http://www.supermicro.com/support/manuals/> ("AMI BIOS POST Codes User's Guide").

When BIOS performs the Power On Self Test, it writes checkpoint codes to I/O port 0080h. If the computer cannot complete the boot process, a diagnostic card can be attached to the computer to read I/O port 0080h (Supermicro p/n AOC-LPC80-20).

For information on AMI updates, please refer to <http://www.ami.com/products/>.

## Appendix B

# Standardized Warning Statements for AC Systems

### About Standardized Warning Statements

The following statements are industry standard warnings, provided to warn the user of situations which have the potential for bodily injury. Should you have questions or experience difficulty, contact Supermicro's Technical Support department for assistance. Only certified technicians should attempt to install or configure components.

Read this appendix in its entirety before installing or configuring components in the Supermicro chassis.

These warnings may also be found on our website at [http://www.supermicro.com/about/policies/safety\\_information.cfm](http://www.supermicro.com/about/policies/safety_information.cfm).

### Warning Definition



**Warning!** This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents.

#### 警告の定義

この警告サインは危険を意味します。

人身事故につながる可能性がありますので、いずれの機器でも動作させる前に、電気回路に含まれる危険性に注意して、標準的な事故防止策に精通して下さい。

此警告符号代表危險。

您正处于可能受到严重伤害的工作环境中。在您使用设备开始工作之前，必须充分意识到触电的危险，并熟练掌握防止事故发生的标准工作程序。请根据每项警告结尾的声明号码找到此设备的安全性警告说明的翻译文本。

此警告符號代表危險。

您正處於可能身體可能會受損傷的工作環境中。在您使用任何設備之前，請注意觸電的危險，並且要熟悉預防事故發生的標準工作程序。請依照每一注意事項後的號碼找到相關的翻譯說明內容。

## Warnung

## WICHTIGE SICHERHEITSHINWEISE

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu Verletzungen führen kann. Machen Sie sich vor der Arbeit mit Geräten mit den Gefahren elektrischer Schaltungen und den üblichen Verfahren zur Vorbeugung vor Unfällen vertraut. Suchen Sie mit der am Ende jeder Warnung angegebenen Anweisungsnummer nach der jeweiligen Übersetzung in den übersetzten Sicherheitshinweisen, die zusammen mit diesem Gerät ausgeliefert wurden.

BEWAHREN SIE DIESE HINWEISE GUT AUF.

## INSTRUCCIONES IMPORTANTES DE SEGURIDAD

Este símbolo de aviso indica peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considere los riesgos de la corriente eléctrica y familiarícese con los procedimientos estándar de prevención de accidentes. Al final de cada advertencia encontrará el número que le ayudará a encontrar el texto traducido en el apartado de traducciones que acompaña a este dispositivo.

GUARDE ESTAS INSTRUCCIONES.

## IMPORTANTES INFORMATIONS DE SÉCURITÉ

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant entraîner des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers liés aux circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions des avertissements figurant dans les consignes de sécurité traduites qui accompagnent cet appareil, référez-vous au numéro de l'instruction situé à la fin de chaque avertissement.

CONSERVEZ CES INFORMATIONS.

## תקנון הזהרות אזהרה

הזהרות הבאות הן אזהרות על פי תקני התעשייה, על מנת להזהיר את המשתמש מפני חבלה פיזית אפשרית. במידה ויש שאלות או היתקלות בבעיה כלשהי, יש ליצור קשר עם מחלקת תמיכה טכנית של סופרמיקרו. טכנאים מוסמכים בלבד רשאים להתקין או להגדיר את הרכיבים. יש לקרוא את הנספח במלואו לפני התקנת או הגדרת הרכיבים במארזי סופרמיקרו.

اَكْ فِ حَالَةٍ وُكِيَ اَيُّ تَتَسَبَّبُ فِ اَصَابَةِ جَسَدٍ هَذَا الزَّهْمُ عَ خَطَرٍ! تَحْذَرُ .  
 قَبْلَ اَيِّ تَعَوَّلَ عَلَى اَيِّ هَعْدَاتٍ، كِي عَلَى عِلْنِ بِالْوَحَاظِ اِلْ اُجُوَّةِ عِي الذَّوَاتِرِ  
 الْكَهْزِبَائِيَّةِ  
 وَكِي عَلَى دَرَاةٍ بِالْوَوَارِسَاتِ الْبَقَائِيَّةِ لَوْ عَ وَقَعَ اَيُّ حَادَثٍ  
 اسْتَخْدَمَ رَقْنِ الْبِ اِي الْوَصُصِ فِ هَآءِ كُلِّ تَحْذَرُ لِلْعَثَرِ تَرْجُوْتَهَا

안전을 위한 주의사항

경고!

이 경고 기호는 위험이 있음을 알려 줍니다. 작업자의 신체에 부상을 야기 할 수 있는 상태에 있게 됩니다. 모든 장비에 대한 작업을 수행하기 전에 전기회로와 관련된 위험요소들을 확인하시고 사전에 사고를 방지할 수 있도록 표준 작업절차를 준수해 주시기 바랍니다.

해당 번역문을 찾기 위해 각 경고의 마지막 부분에 제공된 경고문 번호를 참조하십시오

## BELANGRIJKE VEILIGHEIDSINSTRUCTIES

Dit waarschuwings symbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij een elektrische installatie betrokken risico's en dient u op de hoogte te zijn van de standaard procedures om ongelukken te voorkomen. Gebruik de nummers aan het eind van elke waarschuwing om deze te herleiden naar de desbetreffende locatie.

## BEWAAR DEZE INSTRUCTIES

### Installation Instructions



**Warning!** Read the installation instructions before connecting the system to the power source.

### 設置手順書

システムを電源に接続する前に、設置手順書をお読み下さい。

### 警告

将此系统连接电源前,请先阅读安装说明。

### 警告

將系統與電源連接前，請先閱讀安裝說明。



**Warnung**

Vor dem Anschließen des Systems an die Stromquelle die Installationsanweisungen lesen.

**¡Advertencia!**

Lea las instrucciones de instalación antes de conectar el sistema a la red de alimentación.

**Attention**

Avant de brancher le système sur la source d'alimentation, consulter les directives d'installation.

יש לקרוא את הוראות התקנה לפני חיבור המערכת למקור מתח.

اقرأ إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

시스템을 전원에 연결하기 전에 설치 안내를 읽어주십시오.

**Waarschuwing**

Raadpleeg de installatie-instructies voordat u het systeem op de voedingsbron aansluit.

**Circuit Breaker**

**Warning!** This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 250 V, 20 A.

**サーキット・ブレーカー**

この製品は、短絡(過電流)保護装置がある建物での設置を前提としています。

保護装置の定格が250 V、20 Aを超えないことを確認下さい。

**警告**

此产品的短路(过载电流)保护由建筑物的供电系统提供,确保短路保护设备的额定电流不大于250V,20A。

**警告**

此產品的短路(過載電流)保護由建築物的供電系統提供,確保短路保護設備的額定電流不大於250V,20A。

#### Warnung

Dieses Produkt ist darauf angewiesen, dass im Gebäude ein Kurzschluss- bzw. Überstromschutz installiert ist. Stellen Sie sicher, dass der Nennwert der Schutzvorrichtung nicht mehr als: 250 V, 20 A beträgt.

#### ¡Advertencia!

Este equipo utiliza el sistema de protección contra cortocircuitos (o sobrecorrientes) del edificio. Asegúrese de que el dispositivo de protección no sea superior a: 250 V, 20 A.

#### Attention

Pour ce qui est de la protection contre les courts-circuits (surtension), ce produit dépend de l'installation électrique du local. Vérifiez que le courant nominal du dispositif de protection n'est pas supérieur à :250 V, 20 A.

מוצר זה מסתמך על הגנה המותקנת במבנים למניעת קצר חשמלי. יש לוודא כי המכשיר המגן מפני הקצר החשמלי הוא לא יותר מ-250VDC, 20A

هذا المنتج يعتمد على معدات الحماية من الدوائر القصيرة التي تم تثبيتها في المبنى  
تأكد من أن تقييم الجهاز الوقائي ليس أكثر من : 20A, 250V

#### 경고!

이 제품은 전원의 단락(과전류)방지에 대해서 전적으로 건물의 관련 설비에 의존합니다. 보호장치의 정격이 반드시 250V(볼트), 20A(암페어)를 초과하지 않도록 해야 합니다.

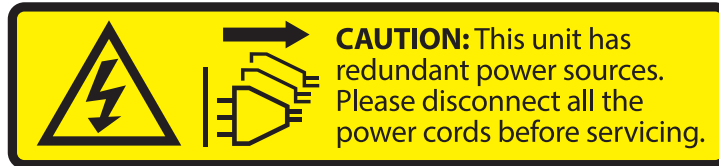
#### Waarschuwing

Dit product is afhankelijk van de kortsluitbeveiliging (overspanning) van uw elektrische installatie. Controleer of het beveiligde apparaat niet groter gedimensioneerd is dan 250V, 20A.

## Power Disconnection Warning



**Warning!** The system must be disconnected from all sources of power and the power cord removed from the power supply module(s) before accessing the chassis interior to install or remove system components.



### 電源切断の警告

システムコンポーネントの取り付けまたは取り外しのために、シャーシ内部にアクセスするには、システムの電源はすべてのソースから切断され、電源コードは電源モジュールから取り外す必要があります。

### 警告

在你打开机箱并安装或移除内部器件前,必须将系统完全断电,并移除电源线。

### 警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

### Warnung

Das System muss von allen Quellen der Energie und vom Netzanschlusskabel getrennt sein, das von den Spg.Versorgungsteilmodulen entfernt wird, bevor es auf den Chassisinnenraum zurückgreift, um Systemsbestandteile anzubringen oder zu entfernen.

### ¡Advertencia!

El sistema debe ser disconnected de todas las fuentes de energía y del cable eléctrico quitado de los módulos de fuente de alimentación antes de tener acceso el interior del chasis para instalar o para quitar componentes de sistema.

### Attention

Le système doit être débranché de toutes les sources de puissance ainsi que de son cordon d'alimentation secteur avant d'accéder à l'intérieur du chassis pour installer ou enlever des composants de système.

אזהרה מפני ניתוק חשמלי

אזהרה!

יש לנתק את המערכת מכל מקורות החשמל ויש להסיר את כבל החשמל מהספק לפני גישה לחלק הפנימי של המארז לצורך התקנת או הסרת רכיבים.

يجب فصل انظاؤ من جميع مصادر انطاقت وإزانت سهك انكهرباء من وحدة امداد انطاقت قېم

انصل إلى انطاقت انداخييت نههيكم نتشيچ أو إزانت مكناث الجهاز

경고!

시스템에 부품들을 장착하거나 제거하기 위해서는 새시 내부에 접근하기 전에 반드시 전원 공급장치로부터 연결되어있는 모든 전원과 전기코드를 분리해주어야 합니다.

Waarschuwing

Voordat u toegang neemt tot het binnenwerk van de behuizing voor het installeren of verwijderen van systeem onderdelen, dient u alle spanningsbronnen en alle stroomkabels aangesloten op de voeding(en) van de behuizing te verwijderen

## Equipment Installation



**Warning!** Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

機器の設置

トレーニングを受け認定された人だけがこの装置の設置、交換、またはサービスを許可されています。

警告

只有经过培训且具有资格的人员才能进行此设备的安装、更换和维修。

警告

只有經過受訓且具資格人員才可安裝、更換與維修此設備。

Warnung

Das Installieren, Ersetzen oder Bedienen dieser Ausrüstung sollte nur geschultem, qualifiziertem Personal gestattet werden.

¡Advertencia!

Solamente el personal calificado debe instalar, reemplazar o utilizar este equipo.

**Attention**

Il est vivement recommandé de confier l'installation, le remplacement et la maintenance de ces équipements à des personnels qualifiés et expérimentés.

אזהרה!

צוות מוסמך בלבד רשאי להתקין, להחליף את הציוד או לתת שירות עבור הציוד.

والمدربيه لتزكيب واستبدال أو خدمة هذا الجهاز يجب أن يسمح فقط للموظفيه المؤهليه

경고!

훈련을 받고 공인된 기술자만이 이 장비의 설치, 교체 또는 서비스를 수행할 수 있습니다.

**Waarschuwing**

Deze apparatuur mag alleen worden geïnstalleerd, vervangen of hersteld door geschoold en gekwalificeerd personeel.

**Restricted Area**

**Warning!** This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security. (This warning does not apply to workstations).

**アクセス制限区域**

このユニットは、アクセス制限区域に設置されることを想定しています。

アクセス制限区域は、特別なツール、鍵と錠前、その他のセキュリティの手段を用いてのみ出入りが可能です。

**警告**

此部件应安装在限制进出的场所，限制进出的场所指只能通过使用特殊工具、锁和钥匙或其它安全手段进出的场所。

**警告**

此裝置僅限安裝於進出管制區域，進出管制區域係指僅能以特殊工具、鎖頭及鑰匙或其他安全方式才能進入的區域。

**Warnung**

Diese Einheit ist zur Installation in Bereichen mit beschränktem Zutritt vorgesehen. Der Zutritt zu derartigen Bereichen ist nur mit einem Spezialwerkzeug, Schloss und Schlüssel oder einer sonstigen Sicherheitsvorkehrung möglich.

**¡Advertencia!**

Esta unidad ha sido diseñada para instalación en áreas de acceso restringido. Sólo puede obtenerse acceso a una de estas áreas mediante la utilización de una herramienta especial, cerradura con llave u otro medio de seguridad.

**Attention**

Cet appareil doit être installée dans des zones d'accès réservés. L'accès à une zone d'accès réservé n'est possible qu'en utilisant un outil spécial, un mécanisme de verrouillage et une clé, ou tout autre moyen de sécurité.

אזור עם גישה מוגבלת

אזהרה!

יש להתקין את היחידה באזורים שיש בהם הגבלת גישה. הגישה ניתנת בעזרת 'כלי אבטחה בלבד' (מפתח, מנעול וכד.).

تخصيص هذه انحدزة نترك بُها ف مناطق محظورة تم .  
ممكن اننصل إن منطقت محظورة فقط من خلال استخذاو أداة خاصت  
أو أ وس هُت أخري نلاأمما ققم ومفتاح

**경고!**

이 장치는 접근이 제한된 구역에 설치하도록 되어있습니다. 특수도구, 잠금 장치 및 키, 또는 기타 보안 수단을 통해서만 접근 제한 구역에 들어갈 수 있습니다.

**Waarschuwing**

Dit apparaat is bedoeld voor installatie in gebieden met een beperkte toegang. Toegang tot dergelijke gebieden kunnen alleen verkregen worden door gebruik te maken van speciaal gereedschap, slot en sleutel of andere veiligheidsmaatregelen.

## Battery Handling



**Warning!** There is the danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions

### 電池の取り扱い

電池交換が正しく行われなかった場合、破裂の危険性があります。交換する電池はメーカーが推奨する型、または同等のものを使用下さい。使用済電池は製造元の指示に従って処分して下さい。

### 警告

電池更换不当会有爆炸危险。请只使用同类电池或制造商推荐的功能相当的电池更换原有电池。请按制造商的说明处理废旧电池。

### 警告

電池更換不當會有爆炸危險。請使用製造商建議之相同或功能相當的電池更換原有電池。請按照製造商的說明指示處理廢棄舊電池。

### Warnung

Bei Einsetzen einer falschen Batterie besteht Explosionsgefahr. Ersetzen Sie die Batterie nur durch den gleichen oder vom Hersteller empfohlenen Batterietyp. Entsorgen Sie die benutzten Batterien nach den Anweisungen des Herstellers.

### Attention

Danger d'explosion si la pile n'est pas remplacée correctement. Ne la remplacer que par une pile de type semblable ou équivalent, recommandée par le fabricant. Jeter les piles usagées conformément aux instructions du fabricant.

### ¡Advertencia!

Existe peligro de explosión si la batería se reemplaza de manera incorrecta. Reemplazar la batería exclusivamente con el mismo tipo o el equivalente recomendado por el fabricante. Desechar las baterías gastadas según las instrucciones del fabricante.

### אזהרה!

קיימת סכנת פיצוץ של הסוללה במידה והוחלפה בדרך לא תקינה. יש להחליף את הסוללה בסוג התואם מחברת יצרן מומלצת. סילוק הסוללות המשומשות יש לבצע לפי הוראות היצרן.

هناك خطر من انفجار في حالة اسحبذال البطارية بطريقة غير صحيحة فعلى  
اسحبذال البطارية  
فقط بنفس النوع أو ما يعادلها مما أوصت به الشركة المصنعة  
جخلص من البطاريات المسحمة وفقا لعمليات الشركة الصانعة

경고!

배터리가 올바르게 교체되지 않으면 폭발의 위험이 있습니다. 기존 배터리와 동일하거나 제조사에서 권장하는 동등한 종류의 배터리로만 교체해야 합니다. 제조사의 안내에 따라 사용된 배터리를 처리하여 주십시오.

Waarschuwing

Er is ontplofingsgevaar indien de batterij verkeerd vervangen wordt. Vervang de batterij slechts met hetzelfde of een equivalent type die door de fabrikant aanbevolen wordt. Gebruikte batterijen dienen overeenkomstig fabrieksvoorschriften afgevoerd te worden.

## Redundant Power Supplies



**Warning!** This unit might have more than one power supply connection. All connections must be removed to de-energize the unit.

冗長電源装置

このユニットは複数の電源装置が接続されている場合があります。

ユニットの電源を切るためには、すべての接続を取り外さなければなりません。

警告

此部件连接的电源可能不止一个，必须将所有电源断开才能停止给该部件供电。

警告

此裝置連接的電源可能不只一個，必須切斷所有電源才能停止對該裝置的供電。

Warnung

Dieses Gerät kann mehr als eine Stromzufuhr haben. Um sicherzustellen, dass der Einheit kein Strom zugeführt wird, müssen alle Verbindungen entfernt werden.



**¡Advertencia!**

Puede que esta unidad tenga más de una conexión para fuentes de alimentación. Para cortar por completo el suministro de energía, deben desconectarse todas las conexiones.

**Attention**

Cette unité peut avoir plus d'une connexion d'alimentation. Pour supprimer toute tension et tout courant électrique de l'unité, toutes les connexions d'alimentation doivent être débranchées.

אם קיים יותר מספק אחד

אזהרה!

ליחידה יש יותר מחיבור אחד של ספק. יש להסיר את כל החיבורים על מנת לרוקן את היחידה.

قد يكون لهذا الجهاز عدة اتصالات بوحدات امداد الطاقة .

يجب إزالة كافة الاتصالات لعسل الوحدة عن الكهرباء

**경고!**

이 장치에는 한 개 이상의 전원 공급 단자가 연결되어 있을 수 있습니다. 이 장치에 전원을 차단하기 위해서는 모든 연결 단자를 제거해야만 합니다.

**Waarschuwing**

Deze eenheid kan meer dan één stroomtoevoeraansluiting bevatten. Alle aansluitingen dienen verwijderd te worden om het apparaat stroomloos te maken.

## Backplane Voltage



**Warning!** Hazardous voltage or energy is present on the backplane when the system is operating. Use caution when servicing.

### バックプレーンの電圧

システムの稼働中は危険な電圧または電力が、バックプレーン上にかかっています。

修理する際には注意ください。

### 警告

当システム正在进行时，背板上有很危险的电压或能量，进行维修时务必小心。

### 警告

當系統正在進行時，背板上有危險的電壓或能量，進行維修時務必小心。

### Warnung

Wenn das System in Betrieb ist, treten auf der Rückwandplatine gefährliche Spannungen oder Energien auf. Vorsicht bei der Wartung.

### ¡Advertencia!

Cuando el sistema está en funcionamiento, el voltaje del plano trasero es peligroso. Tenga cuidado cuando lo revise.

### Attention

Lorsque le système est en fonctionnement, des tensions électriques circulent sur le fond de panier. Prendre des précautions lors de la maintenance.

מתח בפנל האחורי

אזהרה!

קיימת סכנת מתח בפנל האחורי בזמן תפעול המערכת. יש להיזהר במהלך העבודה.

هناك خطر من التيار الكهربائي أو الطاقة المبددة على الساحة  
عندما يكون النظام يعمل كه حذرا عند خدمة هذا الجهاز

경고!

시스템이 동작 중일 때 후면판 (Backplane)에는 위험한 전압이나 에너지가 발생 합니다.  
서비스 작업 시 주의하십시오.

Waarschuwing

Een gevaarlijke spanning of energie is aanwezig op de backplane wanneer het systeem in gebruik is. Voorzichtigheid is geboden tijdens het onderhoud.

## Comply with Local and National Electrical Codes



**Warning!** Installation of the equipment must comply with local and national electrical codes.

地方および国の電気規格に準拠

機器の取り付けはその地方および国の電気規格に準拠する必要があります。

警告

设备安装必须符合本地与本国电气法规。

警告

設備安裝必須符合本地與本國電氣法規。

Warnung

Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

¡Advertencia!

La instalacion del equipo debe cumplir con las normas de electricidad locales y nacionales.

Attention

L'équipement doit être installé conformément aux normes électriques nationales et locales.

תיאום חוקי החשמל הארצי

אזהרה!

התקנת הציוד חייבת להיות תואמת לחוקי החשמל המקומיים והארציים.

تركيب المعدات الكهربائية يجب أن يمثل للقوايه المحلية والبطية المتعلقة  
بالكهرباء

경고!

현 지역 및 국가의 전기 규정에 따라 장비를 설치해야 합니다.

Waarschuwing

Bij installatie van de apparatuur moet worden voldaan aan de lokale en nationale elektriciteitsvoorschriften.

## Product Disposal



**Warning!** Ultimate disposal of this product should be handled according to all national laws and regulations.

製品の廃棄

この製品を廃棄処分する場合、国の関係する全ての法律・条例に従い処理する必要があります。

警告

本产品的废弃处理应根据所有国家的法律和规章进行。

警告

本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung

Die Entsorgung dieses Produkts sollte gemäß allen Bestimmungen und Gesetzen des Landes erfolgen.

¡Advertencia!

Al deshacerse por completo de este producto debe seguir todas las leyes y reglamentos nacionales.

## Attention

La mise au rebut ou le recyclage de ce produit sont généralement soumis à des lois et/ou directives de respect de l'environnement. Renseignez-vous auprès de l'organisme compétent.

סילוק המוצר

אזהרה!

סילוק סופי של מוצר זה חייב להיות בהתאם להנחיות וחוקי המדינה.

التخلص النهائي من هذا المنتج ينبغي التعامل معه وفقا لجميع القوانين واللوائح الوطنية عند

경고!

이 제품은 해당 국가의 관련 법규 및 규정에 따라 폐기되어야 합니다.

## Waarschuwing

De uiteindelijke verwijdering van dit product dient te geschieden in overeenstemming met alle nationale wetten en reglementen.

## Hot Swap Fan Warning



**Warning!** Hazardous moving parts. Keep away from moving fan blades. The fans might still be turning when you remove the fan assembly from the chassis. Keep fingers, screwdrivers, and other objects away from the openings in the fan assembly's housing.

## ファン・ホットスワップの警告

警告!回転部品に注意。運転中は回転部(羽根)に触れないでください。シャーシから冷却ファン装置を取り外した際、ファンがまだ回転している可能性があります。ファンの開口部に、指、ドライバー、およびその他のものを近づけないで下さい。

警告!

警告! 危险的可移动性零件。请务必与转动的风扇叶片保持距离。当您从机架移除风扇装置，风扇可能仍在转动。小心不要将手指、螺丝起子和其他物品太靠近风扇

警告

危险的可移动性零件。请务必与转动的风扇叶片保持距离。当您从机架移除风扇装置，风扇可能仍在转动。小心不要将手指、螺丝起子和其他物品太靠近风扇。

**Warnung**

Gefährlich Bewegende Teile. Von den bewegenden Lüfterblätter fern halten. Die Lüfter drehen sich u. U. noch, wenn die Lüfterbaugruppe aus dem Chassis genommen wird. Halten Sie Finger, Schraubendreher und andere Gegenstände von den Öffnungen des Lüftergehäuses entfernt.

**¡Advertencia!**

Riesgo de piezas móviles. Mantener alejado de las aspas del ventilador. Los ventiladores podran dar vuelta cuando usted quite el montaje del ventilador del chasis. Mantenga los dedos, los destornilladores y todos los objetos lejos de las aberturas del ventilador

**Attention**

Pieces mobiles dangereuses. Se tenir a l'écart des lames du ventilateur Il est possible que les ventilateurs soient toujours en rotation lorsque vous retirerez le bloc ventilateur du châssis. Prenez garde à ce que doigts, tournevis et autres objets soient éloignés du logement du bloc ventilateur.

**אזהרה!**

חלקים נעים מסוכנים. התרחק מלהבי המאוורר בפעולה כאשר מסירים את חלקי המאוורר מהמארז, יתכן והמאווררים עדיין עובדים. יש להרחיק למרחק בטוח את האצבעות וכלי עבודה שונים מהפתחים בתוך המאוורר

تحذير! أجزاء متحركة خطيرة. ابتعد عن شفرات المروحة المتحركة. من الممكن أن المراوح لا تزال تدور عند إزالة كتلة المروحة من الهيكل يجب إبقاء الأصابع ومفكات البراغي وغيرها من الأشياء بعيدا عن الفتحات في كتلة المروحة

**경고!**

움직이는 위험한 부품. 회전하는 송풍 날개에 접근하지 마세요. 새시로부터 팬 조립품을 제거할 때 팬은 여전히 회전하고 있을 수 있습니다. 팬 조립품 외관의 열려있는 부분들로부터 손가락 및 스크류드라이버, 다른 물체들이 가까이 하지 않도록 배치해 주십시오.

**Waarschuwing**

Gevaarlijk bewegende onderdelen. Houd voldoende afstand tot de bewegende ventilatorbladen. Het is mogelijk dat de ventilator nog draait tijdens het verwijderen van het ventilatorsamenstel uit het chassis. Houd uw vingers, schroevendraaiers en eventuele andere voorwerpen uit de buurt van de openingen in de ventilatorbehuizing.

## Power Cable and AC Adapter



**Warning!** When installing the product, use the provided or designated connection cables, power cables and AC adaptors. Using any other cables and adaptors could cause a malfunction or a fire. Electrical Appliance and Material Safety Law prohibits the use of UL or CSA -certified cables (that have UL/CSA shown on the cord) for any other electrical devices than products designated by Supermicro only.

### 電源コードとACアダプター

製品を設置する場合、提供または指定および購入された接続ケーブル、電源コードとACアダプターを、該当する地域の条例や安全基準に適合するコードサイズやプラグと共に使用下さい。他のケーブルやアダプタを使用すると故障や火災の原因になることがあります。

電気用品安全法は、ULまたはCSA認定のケーブル(UL/CSAマークがコードに表記)を Supermicro が指定する製品以外に使用することを禁止しています。

### 警告

安装此产品时,请使用本身提供的或指定的或采购的连接线,电源线和电源适配器。包含遵照当地法规和安全要求的合规的电源线尺寸和插头。使用其它线材或适配器可能会引起故障或火灾。除了Supermicro所指定的产品,电气用品和材料安全法律规定禁止使用未经UL或CSA认证的线材。(线材上会显示UL/CSA符号)。

### 警告

安裝此產品時,請使用本身提供的或指定的或採購的連接線,電源線和電源適配器。包含遵照當地法規和安全要求的合規的電源線尺寸和插頭。使用其它線材或適配器可能會引起故障或火災。除了Supermicro所指定的產品,電氣用品和材料安全法律規定禁止使用未經UL或CSA認證的線材。(線材上會顯示UL/CSA符號)。

### Warnung

Nutzen Sie beim Installieren des Produkts ausschließlich die von uns zur Verfügung gestellten Verbindungskabeln, Stromkabeln und/oder Adapter, die Ihre örtlichen Sicherheitsstandards einhalten. Der Gebrauch von anderen Kabeln und Adapter können Fehlfunktionen oder Feuer verursachen. Die Richtlinien untersagen das Nutzen von UL oder CAS zertifizierten Kabeln (mit UL/CSA gekennzeichnet), an Geräten oder Produkten die nicht mit Supermicro gekennzeichnet sind.

## ¡Advertencia!

Cuando instale el producto, utilice la conexión provista o designada o procure cables, Cables de alimentación y adaptadores de CA que cumplan con los códigos locales y los requisitos de seguridad, incluyendo el tamaño adecuado del cable y el enchufe. El uso de otros cables y adaptadores podría causar un mal funcionamiento o un incendio. La Ley de Seguridad de Aparatos Eléctricos y de Materiales prohíbe El uso de cables certificados por UL o CSA (que tienen el certificado UL / CSA en el código) para cualquier otros dispositivos eléctricos que los productos designados únicamente por Supermicro.

## Attention

Lors de l'installation du produit, utilisez les cables de connection fournis ou désigné ou achetez des cables, cables de puissance et adaptateurs respectant les normes locales et les conditions de securite y compris les tailles de cables et les prises electriques appropriées. L'utilisation d'autres cables et adaptateurs peut provoquer un dysfonctionnement ou un incendie. Appareils électroménagers et la Loi sur la Sécurité Matériel interdit l'utilisation de câbles certifiés- UL ou CSA (qui ont UL ou CSA indiqué sur le code) pour tous les autres appareils électriques sauf les produits désignés par Supermicro seulement.

AC ימאתמו מילמשח מילבכ

!הרהזא

ךרוצל ומאתוה וא ושכרנ רשא AC מימאתמו מיקפס, מילבכב שמתשהל שי, רצומה תא מיניקתמ רשאכ לכב שומיש . עקתהו לבכה לש הנוכח הדימ ללוכ, תוימוקמה תוחיטבה תושירדל ומאתוה רשאו, הנקתהה למשחה ירישכמב שומישה יקוחל מאתהב. ילמשח רצק וא הלוקתל מורגל לולע, רחא גוסמ מאתמ וא לבכ לש דוק מהילע עיפומ רשאכ) UL-ב או CSA-ב -ב מיכמסומה מילבכב שמתשהל רוסיא מייק, תוחיטבה יקוחו דבלב Supermicro י"ע מאתוה רשא רצומב קר אלא, רחא ילמשח רצומ לכ רובע (UL/CSA)

תאלבאלא אארשב מק וא ענדחמל וא ערפוטמל תאליסוולא מודחטסאב מק, גתנמל בייקרת דנע כלז יפ אמב עילחמל עמאלסל תאבלטתמו נינאווב מאזתלל עמ דדרתמל ראיטל תאלוחמו עיזאברמלל קיירח וא לטע יפ בבסטטי דק ירזא תאלוחמו תאלבאלא יא מודחטסא. מילסל סבאלאו לסוולא מרח. CSA וא UL לבק נמ ענדחמל תאלבאלא מודחטסא תאדעמל עיזאברמלל עזגאלל עמאלסל נונאק רזחי Supermicro לבק נמ ענדחמל עינעמל תאגתנמל ריג ירזא תאדעמ יא עמ (UL/CSA) עמאלע למחת יטלוא



### 전원 케이블 및 AC 어댑터

경고! 제품을 설치할 때 현지 코드 및 적절한 굵기의 코드와 플러그를 포함한 안전 요구 사항을 준수하여 제공되거나 지정된 연결 혹은 구매 케이블, 전원 케이블 및 AC 어댑터를 사용하십시오.

다른 케이블이나 어댑터를 사용하면 오작동이나 화재가 발생할 수 있습니다. 전기 용품 안전법은 UL 또는 CSA 인증 케이블 (코드에 UL / CSA가 표시된 케이블)을 Supermicro가 지정한 제품 이외의 전기 장치에 사용하는 것을 금지합니다.

### Stroomkabel en AC-Adapter

Waarschuwing! Bij het aansluiten van het Product uitsluitend gebruik maken van de geleverde Kabels of een andere geschikte aan te schaffen Aansluitmethode, deze moet altijd voldoen aan de lokale voorschriften en veiligheidsnormen, inclusief de juiste kabeldikte en stekker. Het gebruik van niet geschikte Kabels en/of Adapters kan een storing of brand veroorzaken. Wetgeving voor Elektrische apparatuur en Materiaalveiligheid verbied het gebruik van UL of CSA -gecertificeerde Kabels (met UL/CSA in de code) voor elke andere toepassing dan de door Supermicro hiervoor beoogde Producten.

# Appendix C

## System Specifications

### Processors

Single Intel Xeon 81xx/61xx/51xx/41xx/31xx or Xeon 82xx/62xx/52xx/42xx/32xx processors (Intel Scalable Processors) with up to 28 cores and a thermal design power (TDP) of up to 205W in Socket P0 (LGA3647) **Note:** Refer to the motherboard specifications pages on our website for updates to supported processors.

### Chipset

Intel C622

### BIOS

256 Mb SPI AMI BIOS SM Flash UEFI BIOS

### Memory

Six slots for up to 1.5TB DDR4 3DS ECC RDIMM or LRDIMM memory with speeds of up to 2933MHz

### Storage Drives

Four fixed internal 2.5" SATA drive positions

(Optional) M.2: One PCIe M.2 M-Key

### PCI Expansion Slots

One PCIe 3.0 x16 slot and two PCIe 3.0 x8 slots, OR two PCIe 3.0 x16 slots

One M.2 M-Key 2280/22110 (PCIe 3.0 x4 / SATA3).

### Motherboard

X11SPW-TF; Length 13", width 8" (330 mm x 203 mm)

### Chassis

E403iF (WxHxD) 10.5 x 4.3 x 16 in. (267 x 109 x 406 mm)

### System Cooling

Three 80x80x38 mm, 13.5K RPM fans, one CPU heatsink, an air shroud to direct air flow

### Input/Output

Two 10 GbE ports

One dedicated IPMI port

USB: four 3.0 ports; two USB 2.0 ports

One serial port; one VGA port

Two SuperDOM (Disk on Module) ports with built-in power

### Weight

Net Weight: 18 lbs (8.16 kg)

Gross Weight: 24 lbs (10.89 kg)

### Power Supply

Model: PWS-601-1H, 600 W AC multi-output power supply with PFC, 80Plus gold level

Input: 100-240 Vac; 7.5-3.1 A; 50-60 Hz

### Operating Environment

Operating Temperature: 0° to 45° C (32° to 113° F)

Non-operating Temperature: -40° to 70° C (-40° to 158° F)

Operating Relative Humidity: 8% to 90% (non-condensing)

Non-operating Relative Humidity: 5% to 95% (non-condensing)

**Regulatory Compliance**

FCC, ICES, CE, VCCI, RCM, NRTL, CB

**Applied Directives, Standards**

EMC/EMI: 2014/30/EU (EMC Directive)

FCC Part 15

ICES-003

VCCI 32-1

AS/NZS CISPR 32

EN55032

EN55035

CISPR 24

EN 61000-3-2

EN 61000-3-3

EN 61000-4-2

EN 61000-4-3

EN 61000-4-4

EN 61000-4-5

EN 61000-4-6

EN 61000-4-8

EN 61000-4-11

Green Environment:

2011/65/EU (RoHS Directive)

EC 1907/2006 (REACH)

2012/19/EU (WEEE Directive)

Product Safety: 2014/35/EU (LVD Directive)

UL/CSA 62368-1 (USA and Canada)

IEC/EN 62368-1

**Perchlorate Warning**

California Best Management Practices Regulations for Perchlorate Materials: This Perchlorate warning applies only to products containing CR (Manganese Dioxide) Lithium coin cells. "Perchlorate Material-special handling may apply. See [www.dtsc.ca.gov/hazardouswaste/perchlorate](http://www.dtsc.ca.gov/hazardouswaste/perchlorate)"

この装置は、クラスA機器です。この装置を住宅環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

VCCI — A

## BSMI Chinese Safety Warnings

## 限用物質含有情況標示聲明書

Declaration of the Presence Condition of the Restricted Substances Marking

設備名稱：伺服器 / Server Equipment name						
型號（型式）： E403iF-S6X11 (系列型號: E403-6; E403-EBD; SYS-E403-9P-FN2T) Type designation (Type)						
單元 Unit	限用物質及其化學符號 Restricted substances and its chemical symbols					
	鉛Lead (Pb)	汞Mercury (Hg)	鎘Cadmium (Cd)	六價鉻 Hexavalent chromium (Cr <sup>+6</sup> )	多溴聯苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
機殼 (Chassis)	○	○	○	○	○	○
線材 (Cable)	○	○	○	○	○	○
主機板 (Motherboard)	—	○	○	○	○	○
電源背板 (PDB)	—	○	○	○	○	○
電源供應器 (Power supply)	—	○	○	○	○	○
硬碟 (HDD/M.2 SSD)	—	○	○	○	○	○
風扇 (Fan)	—	○	○	○	○	○
附加卡 (Add on card)	—	○	○	○	○	○
<p>備考1. “超出0.1 wt %” 及 “超出0.01 wt %” 係指限用物質之百分比含量超出百分比含量基準值。 Note 1 : “Exceeding 0.1 wt %” and “exceeding 0.01 wt %” indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition.</p> <p>備考2. “○” 係指該項限用物質之百分比含量未超出百分比含量基準值。 Note 2 : “○” indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.</p> <p>備考3. “—” 係指該項限用物質為排除項目。 Note 3 : The “—” indicates that the restricted substance corresponds to the exemption.</p>						



警告使用者：

這是甲類的資訊產品，在居住的環境中使用時，可能會造成  
射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策

輸入額定: 100-240V ~ ,60-50 Hz ,7.5-3.1A

\*使用者不能任意拆除或替換內部配備

\*報驗義務人之姓名或名稱：美超微電腦股份有限公司

\*報驗義務人之地址：新北市中和區建一路 150 號 3 樓

## Appendix D

### UEFI BIOS Recovery

**Warning:** Do not upgrade the BIOS unless your system has a BIOS-related issue. Flashing the wrong BIOS can cause irreparable damage to the system. In no event shall Supermicro be liable for direct, indirect, special, incidental, or consequential damages arising from a BIOS update. If you do update the BIOS, do not shut down or reset the system while the BIOS is updating to avoid possible boot failure.

#### D.1 Overview

The Unified Extensible Firmware Interface (UEFI) provides a software-based interface between the operating system and the platform firmware in the pre-boot environment. The UEFI specification supports an architecture-independent mechanism that will allow the UEFI OS loader stored in an add-on card to boot the system. The UEFI offers clean, hands-off management to a computer during system boot.

#### D.2 Recovering the UEFI BIOS Image

A UEFI BIOS flash chip consists of a recovery BIOS block and a main BIOS block (a main BIOS image). The recovery block contains critical BIOS codes, including memory detection and recovery codes for the user to flash a healthy BIOS image if the original main BIOS image is corrupted. When the system power is turned on, the recovery block codes execute first. Once this process is complete, the main BIOS code will continue with system initialization and the remaining POST (Power-On Self-Test) routines.

**Note 1:** Follow the BIOS recovery instructions below for BIOS recovery when the main BIOS block crashes.

**Note 2:** When the BIOS recovery block crashes, you will need to follow the procedures to make a Returned Merchandise Authorization (RMA) request. Also, you may use the Supermicro Update Manager (SUM) Out-of-Band ([https://www.supermicro.com.tw/products/nfo/SMS\\_SUM.cfm](https://www.supermicro.com.tw/products/nfo/SMS_SUM.cfm)) to reflash the BIOS.

#### D.3 Recovering the Main BIOS Block with a USB Device

This feature allows the user to recover the main BIOS image using a USB-attached device without additional utilities used. A USB flash device such as a USB Flash Drive, or a USB CD/DVD ROM/RW device can be used for this purpose. However, a USB Hard Disk drive cannot be used for BIOS recovery at this time.

The file system supported by the recovery block is FAT (including FAT12, FAT16, and FAT32) which is installed on a bootable or non-bootable USB-attached device. However, the BIOS might need several minutes to locate the SUPER.ROM file if the media size becomes too large due to the huge volumes of folders and files stored in the device.

To perform UEFI BIOS recovery using a USB-attached device, follow the instructions below.

1. Using a different machine, copy the "Super.ROM" binary image file into the Root "\" directory of a USB device or a writable CD/DVD.

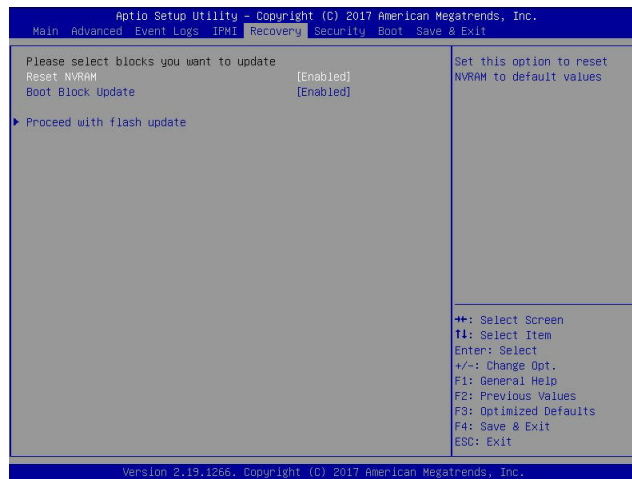
**Note 1:** If you cannot locate the "Super.ROM" file in your drive disk, visit our website at [www.supermicro.com](http://www.supermicro.com) to download the BIOS package. Extract the BIOS binary image into a USB flash device and rename it "Super.ROM" for the BIOS recovery use.

**Note 2:** Before recovering the main BIOS image, confirm that the "Super.ROM" binary image file you download is the same version or a close version meant for your motherboard.

2. Insert the USB device that contains the new BIOS image ("Super.ROM") into your USB drive and reset the system when the following screen appears.



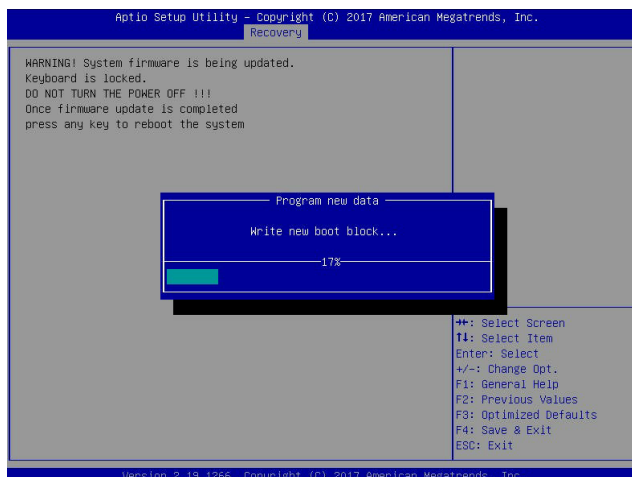
3. After locating the healthy BIOS binary image, the system will enter the BIOS Recovery menu as shown below.



**Note:** At this point, you may decide if you want to start the BIOS recovery. If you decide to proceed with BIOS recovery, follow the procedures below.

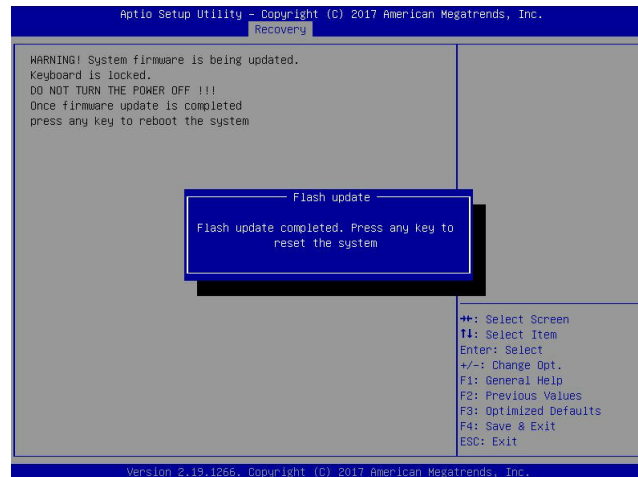
4. When the screen as shown above displays, use the arrow keys to select the item "Proceed with flash update" and press the <Enter> key. You will see the BIOS recovery progress as shown in the screen below.

**Note:** Do not interrupt the BIOS flashing process until it has completed.

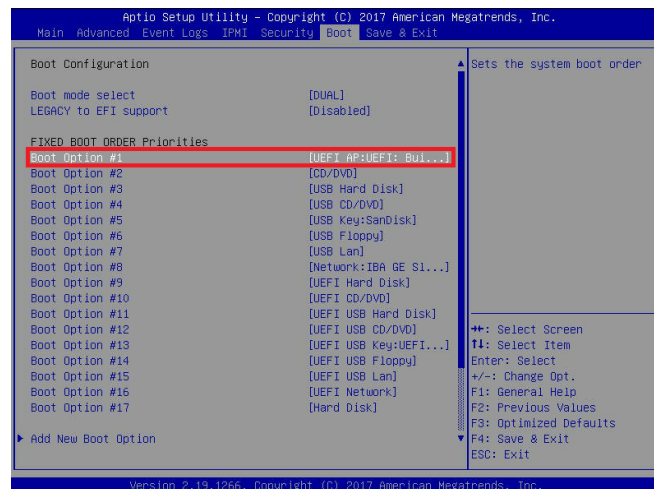




5. After the BIOS recovery process is complete, press any key to reboot the system.



6. Using a different system, extract the BIOS package into a USB flash drive.
7. Press <Del> continuously during system boot to enter the BIOS Setup utility. From the top of the tool bar, select Boot to enter the submenu. From the submenu list, select Boot Option #1 as shown below. Then, set Boot Option #1 to [UEFI AP:UEFI: Built-in EFI Shell]. Press <F4> to save the settings and exit the BIOS Setup utility.



8. When the UEFI Shell prompt appears, type `fs#` to change the device directory path. Go to the directory that contains the BIOS package you extracted earlier from Step 6. Enter `flash.nsh BIOSname.###` at the prompt to start the BIOS update process.

```

UEFI Interactive Shell v2.1
EDK II
UEFI v2.50 (American Megatrends, 0x0005000C)
Mapping table
  FS0: Alias(s):HD(0)B:BLK1:
        PciRoot(0x0)/Pci(0x14,0x0)/USB(0x11,0x0)/HD(1,MBR,0x37901072,0x800,0x1
CR3592)
  BLK0: Alias(s):
        PciRoot(0x0)/Pci(0x14,0x0)/USB(0x11,0x0)
Press F8 in 1 seconds to skip startup.nsh or any other key to continue.
Shell> fs#
FS0:\> cd \AFUDOS
FS0:\AFUDOS> cd SKJPM2_03162017
FS0:\AFUDOS\SKJPM2_03162017> flash.nsh X110PU7.314

```

**Note:** Do not interrupt this process until the BIOS flashing is complete.

```

Done.
[ Access Cmos Port Ex ]
<Read>
Index 0x51: 0x10

Done.
*****
* Program BIOS and ME (including FDT) regions...
*****
| AMT Firmware Update Utility v5.09.01.1317 |
| Copyright (C)2017 American Megatrends Inc. All Rights Reserved. |
|-----|
CPUID = 50652

Reading flash ..... done
- ME Data Size checking - ok
- FFS checksums ..... ok
- Check RomLayout ..... OK
Erasing Boot Block ..... done
Updating Boot Block ..... done
Verifying Boot Block ..... done
Erasing Main Block ..... 0x00132000 (0%)

```

9. The screen above indicates that the BIOS update process is complete. When you see the screen above, unplug the AC power cable from the power supply, clear CMOS, and plug the AC power cable in the power supply again to power on the system.

```

Verifying NDB Block ..... done
- Update success for FDR
- Update success for IE
- Successful Update Recovery Loader to OPRx!!
- Successful Update MFSB!!
- Successful Update FPR!!
- Successful Update MFS, IVB1 and IVB2!!
- Successful Update FLOG and UTDK!!
- ME Entire Image update success !!
WARNING : System must power-off to have the changes take effect!
Moving FS0:\AFUDOS\SKJPM2_03162017\rdtx64.efi -> FS0:\AFUDOS\SKJPM2_03162017\
dt.smc
- [ok]
Moving FS0:\AFUDOS\SKJPM2_03162017\afuef1x64.efi -> FS0:\AFUDOS\SKJPM2_0316201
7\afuef1.smc
- [ok]
*****
* Please ignore this 'Shell: Cannot read from file - Device Error'
* warning message due to it does not impact flashing process.
*****
Deleting "afuef1.smc"
Delete successful.
FS0:\>

```

10. Press `<Del>` continuously to enter the BIOS Setup utility.
11. Press `<F3>` to load the default settings.
12. After loading the default settings, press `<F4>` to save the settings and exit the BIOS Setup utility.

# Appendix E

## IPMI Crash Dump

In the event of a processor internal error (IERR) that crashes your system, you may want to provide information to support staff. You can download a crash dump of status information using IPMI. The IPMI manual is available at <https://www.supermicro.com/solutions/IPMI.cfm>.

### Check IPMI Error Log

1. Access the IPMI web interface.
2. Click the **Server Health** tab, then **Event Log** to verify an IERR error.

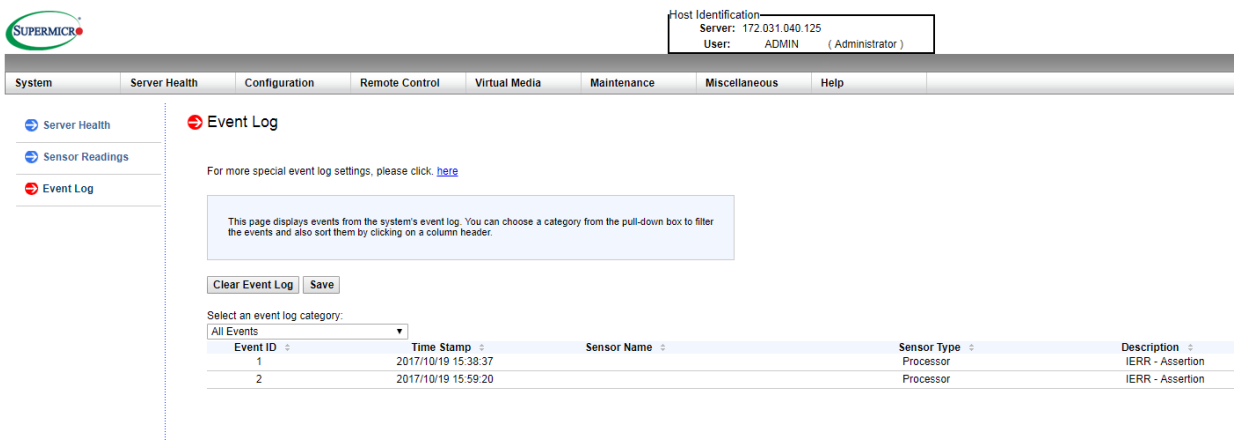


Figure E-1. IPMI Event Log

In the event of an IERR, the BMC executes a crash dump. You must download the crash dump and save it.

### Downloading the Crash Dump File

1. In the IPMI interface, click the **Miscellaneous** tab, then the **Trouble Shooting** option.
2. Click the **Dump** button and wait five minutes for the file to be created. (No confirmation message will appear.)
3. Click the **Download** button and a Save As dialog appears.
4. Save the zipped dump file, noting the name and location.

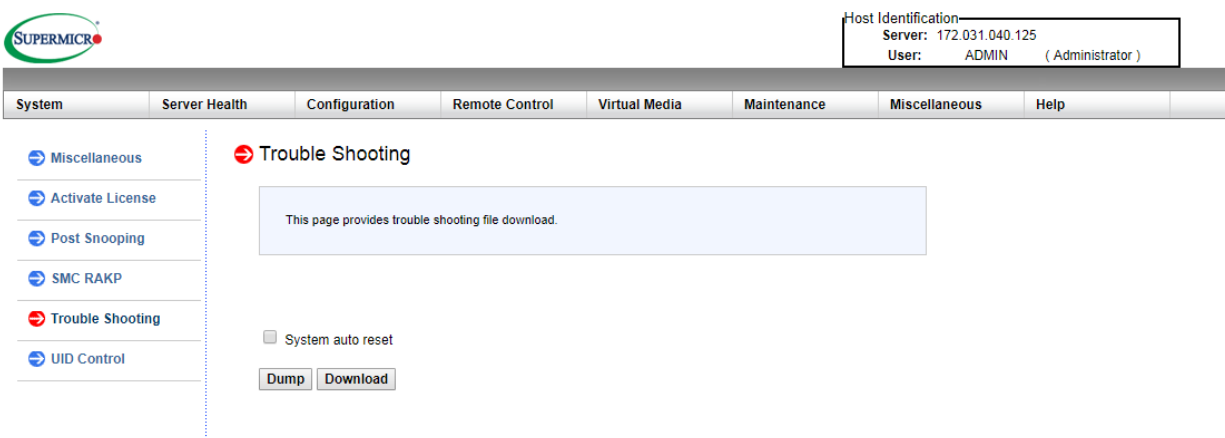


Figure E-2. IPMI Crash Dump Download

**Note:** The **System auto reset** check box dictates behavior after an IERR. If checked, the system will restart automatically, and the dump file will be erased. If not, the system remains in a failed state. Do not check this box until after the dump file has been sent to Support.